TEXTILE TECHNOLOGY DIGEST

VOLUME 5 FEBRUARY 1948 NUMBER 2

Abstracts

ORGANIC FIBERS I

Fiber structure. Structure of fibers. Chemitex. *Textile Recorder 64,* No. 758, 53, 56 (May, 1946).

A brief review of the structure of textile fibers. TTD: 2-48

Fibers. Fibers. Robt. S. Casey, W. A. Sheaffer Pen Co. & C. S. Grove, Jr., Iowa State Univ. *Ind. Eng. Chemistry 39,* 1213-15 (Oct. 1947).

A brief discussion of the classification and the properties of fibers, and their application to chemical engineering construction. TTD: 2-48

Fibers in rubber industry. Textile products for rubber industry. Lewis Larrick, Office of Naval Research. *India Rubber World 117,* 208-11, 219 (Nov. 1947).

A lecture on textile fibers and their application to the rubber industry. TTD: 2-48

Vegetable fibers I 1

Cotton fiber length. Variation of fiber length in sample of cotton. R. L. N. Iyengar, Technological Laboratory (Bombay). *Indian Cotton Growing Rev. 1,* 179-83 (Oct. 1947).

Environmental factors and differences among seeds produce variation in fiber length; but, due to the fact that the fibers attached to a single seed vary greatly, the variation of fiber length in a bulk sample of cotton is only slightly more than in fibers attached to a single seed. TTD: 2-48

Flax. Story of fiber flax in Australia. Anon. *Natl. Canvas Goods Mfrs'. Rev. 23,* No. 5, 36-8, 40 (Aug. 1947).

A review of the flax industry and research work in Australia. TTD: 2-48

Jute. Jute fiber. P. B. Sarkar, Indian Central Jute Committee. *Indian Textile J. 58,* 145-50, 158 (Nov. 1947).

The jute fiber is discussed in relation to its hygroscopic nature, color, chemical retting, composition, absorption of basic dyes, etc. TTD: 2-48

Sampling gin. Cotton sampling gin. Anon. *Platt's Bull. 5,* 168 (July-Aug. 1947).

A brief description of a portable Macarthy cotton gin which is capable of producing excellent sampling results from small quantities of cotton. The gin is useful in assisting in the development of new and improved cotton strains. TTD: 2-48

COTTON CONTEST, 1944, FOR BETTER YIELD AND STAPLE VALUE. Anon. Circular 267 of Clemson Agr. College (S. C.); 1945; 20 pp. TTD: 2-48

COTTON VARIETY TESTS IN YAZOO-MISSISSIPPI DELTA, 1943-45. J. Winston Neely & Sidney G. Brain. Bull. 435 of Agr. Expt. Station, State College, Miss.; 1946; 12 pp. TTD: 2-48

EFFECT OF GINNING EQUIPMENT ON COTTON QUALITY. A. H. Chambers & W. H. Fortenberry. Monograph 213 of Agr. Expt. Station (Knoxville, Tenn.); 1946; 23 pp. TTD: 2-48

INDIAN COTTON TEXTILE INDUSTRY ANNUAL (1946-7). Edited by M. P. Gandhi. Gandhi & Co. Jan Mansion, Sir P. M. Road, Fort, Bombay; price Rs. 6-0-0.

Reviewed in *Indian Textile J. 58,* 71 (Oct. 1947). TTD: 2-48

MARKET FOR COTTON TEXTILES IN BAGS. Robt. B. Evans, R. J. Cheatham & Barkley Meadows. Bull. AIC-149 of USDA Agr. Research Administration; 1947; 14 pp. TTD: 2-48

1946 COTTON CONTEST FOR HIGHER YIELDS AND BETTER QUALITY. H. G. Boylston. Circular 295 of Clemson Agr. College (S. C.); 1947; 30 pp. TTD: 2-48

PRODUCTION AND UTILIZATION OF KUDZU. R. E. O'Brien & D. W. Skelton. Bull. 438 of Agr. Expt. Station, State College, Miss.; 1946; 25 pp. TTD: 2-48

QUALITY OF COTTON PRODUCED IN NEW MEXICO, 1940-43. F. A. B. MacKeil & J. C. Overpeck. Bull. 330 of Agr. Expt. Station (State College, N. M.); 1946; 25 pp. TTD: 2-48

SEVEN STEPS TO PROFITABLE COTTON PRODUCTION IN SOUTH CAROLINA. Anon. Circular 298 of Clemson Agr. College (S. C.) Extension Service; 1947; 4 pp. TTD: 2-48

Animal fibers I 2

Raw silk. Some physical properties of Mysore raw silk. Srinagabhushana, Sri Krishnarajendra Silver Jubilee Technological Inst. *Indian Textile J. 58,* 31-2 (Oct. 1947).

Results of an investigation of the breaking strength and extension at break of Mysore raw silk, which is obtained from a distinct race of silk worms, are briefly reviewed. TTD: 2-48

SAMPLING AND MEASURING METHODS FOR DETERMINING FINENESS AND UNIFORMITY OF WOOL. Elroy M. Pohle, L. N. Hazel & H. R. Keller. USDA Circular 704; 1947; 15 pp.; price 10¢. May be obtained from Superintendent of Documents, Washington, D. C. TTD: 2-48

Artificial fibers I 3

Plastic fibers. Production of plastic fibers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72663, IVc/39c, July, 1942. PB 45593. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 6 pp.; price $1.00 (Microfilm or Photostat).

The cable coming from the spinning device is placed in centrifuges where the containers are subdivided. Then the windings are subjected to a stretching process. TTD: 2-48

Spinning pot. Spinning pot for producing endless artificial threads. I. G. Farbenindustrie A-G. Ger. P. Appl. I 73007 VII/29a, Aug. 1942. PB 45616. *Bibl. Sci. Ind. Reports 4,* 348 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

In ordinary spinning pots, the spun material frequently attaches itself to the pot and requires removal by force, which damages the pot and may also tangle up the inner layers of thread. This invention is a spinning pot consisting of an even number of segments, 2 adjoining segments always overlapping. They are held straight during the spinning process by an attached cover. When the cover is removed, they spread out, allowing easy removal of the spun material. TTD: 2-48

Rayons I 3 a

Continuous rayon spinning. Announcing the "Nelson" continuous rayon spinning machine. Anon. *Platt's Bull. 5,* 194-201 (Sept.-Oct. 1947).

It is claimed that potential damage inherent in doffing,

transporting, lacing and washing, or reeling and finishing the yarn while in its tender state is avoided, and low deniers which are difficult to spin by the centrifugal process are easily produced by this new continuous process. TTD: 2-48

Continuous rayon spinning. Continuous spinning of rayon by new process. Anon. *Textile World 97,* No. 11, 157-8 (Nov. 1947).

The Kuljian process is described briefly. The essential element of this process is a set of rollers 16" long on which 10 processes, 9 of them wet, are carried out. TTD: 2-48

Wool-like rayon. Process for producing wool-like pelt materials from acetate staple and filament rayon. I. G. Farbenindustrie. Ger. P. Appl. I 71729 VII/18a, Mar. 1942. PB 45529. *Bibl. Sci. Ind. Reports 4,* 341 (Jan. 24, 1947); 2 pp.; price $1.00 (Microfilm or Photostat).

The method is the known one of boiling, which causes shrinking and felting. This method is adapted for chenille textiles. The pelt-like effect is on both sides of the material, increasing its thermal insulating quality. TTD: 2-48

Non-stretch garment. Camille Dreyfus. USP 2 426 674, Sept. 2, 1947.

Wearing apparel of high dimensional stability is made from regenerated cellulose yarns and threads produced from stretched and saponified organic esters of cellulose. The yarns may be stretched 300–2000% of their original length. Stretching greatly increases the tenacity of the yarns and lowers the elongation. The increased tenacity is retained and frequently increased substantially when the stretched organic ester of cellulose yarns are saponified. Yarns produced in this way have an elongation of not more than 0.3% over a variation in r. h. of 10 to 100%, and do not shrink when laundered or stretch under tension. TTD: 2-48

Viscose. Paul H. Schlosser & Kenneth R. Gray (to Rayonier, Inc.). USP 2 428 387, Oct. 7, 1947.

In the manufacture of shredded alkali cellulose from refined wood pulp containing not more than 15% ether-extractable material, 0.01-0.20% of a cation-active sulfonium compound, based on the weight of the bone-dry pulp, is incorporated in the pulp, said sulfonium compound acting as a fiber lubricant. The preferred sulfonium compounds are those which have attached to the S a normal primary aliphatic hydrocarbon radical with 7-20 C atoms and 2 hydrocarbon groups with 1-6 C atoms, such as lauryl methyl ethyl sulfonium methyl sulfate. TTD: 2-48

Filament spinning. Am. Viscose Corp. Brit. P. 584 719. *Textile Mfr. 73,* 438 (Sept. 1947).

In a machine for spinning artificial filaments, means are provided for withdrawing bundles of filaments from the spinneret through the bath in an oblique path and conducting them to a collecting device. TTD: 2-48

Flame-resistant filaments. E. R. Winton & J. C. Somerville (to Imperial Chemical Industries, Ltd.). Brit. P. 584 911. *Textile Mfr. 73,* 438 (Sept. 1947).

Flame-resistant, artificial filaments, composed of cellulose derivatives containing combined alumina, are wet-spun from a solution containing a water soluble salt of a cellulose hydroxy fatty acid into a coagulating bath containing a salt solution having an aluminum cation. TTD: 2-48

Viscose thread. Process for producing threads by precipitating viscose in a spinning funnel. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70015 IVc/29b, June, 1942. PB 45583. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

The fiber bundles of cellulose xanthate are moved as flat fiber bands by using gliding and turning devices. Five drawings explain the method employed. For prior patent, see PB 34265. TTD: 2-48

Addition to viscose. Production of fibers, films and other shaped bodies from viscose. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70435 IVc/29b, Sept. 1941. PB 45432. *Bibl. Sci. Ind. Reports 4,* 332 (Jan. 24, 1947); 2 pp.; price $1.00 (Microfilm or Photostat).

Water-soluble salts of high molecular aliphatic carboxylic acids are incorporated into viscose prior to precipitation. The free carboxylic acids are separated during the acid bath films and provide them with valuable properties such as softness, water resistance and others. TTD: 2-48

Rayon spinning spool. Spinning spool made of rigid material for manufacture of rayon. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71020 VII/29a, Dec. 1941. PB 45468. *Bibl. Sci. Ind. Reports 4,* 335 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

This is a simply-constructed spinning spool designed for post-treatment, drying and working-up of wet spun rayon. It consists of a hollow cylinder of lacquered sheet metal with a longitudinal slit. It is elastic in circumference, having a diameter of 12-15 cm. The edges at the slit are bent inward, their frontal parts being

rounded. The entire surface of the spool with the exception of the edges is perforated. This construction is intended to prevent jamming of the rayon layers on narrowing of the slit. A diagram is included. TTD: 2-48

Non-wrinkling rayon. Process for producing non-wrinkling men's suitings from 100% rayon staple. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71055 VII/86c, Dec. 1941. PB 45471. *Bibl. Sci. Ind. Reports 4,* 335 (Jan. 24, 1947); 2 pp.; price $1.00 (Microfilm or Photostat).

A procedure is claimed for manufacturing textile materials for men's suitings from 100% rayon staple for which "Onde crepe yarn" is used in filling and warp. This textile fabric proved quite resistant to wrinkling. TTD: 2-48

Viscose spinning. Process for spinning viscose. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71103 IVc/29b, Dec. 1941. PB 45483. *Bibl. Sci. Ind. Reports 4,* 336 (Jan. 24, 1947); 7 pp.; price $1.00 (Microfilm or Photostat).

Over-ripe viscose with NaCl point below 0.2 may be spun satisfactorily by coagulating with solutions of salts which react alkaline, and regenerating the cellulose by means of an acid. The process may be performed in various ways, depending on whether water, acid, or water and acid are to be saved. A great advantage of the method is the high-speed withdrawal (150-200 meters/min) without risking the breaking of threads. TTD: 2-48

Rayon. Process for producing high tenacity filaments and staple fiber from cellulose. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71565 IVc/29b, Feb. 1942. PB 45502. *Bibl. Sci. Ind. Reports 4,* 338 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

Filament and staple rayon of extremely high tensile strength and high extension are obtained from wood-bearing leaves, from which the parenchymatous portions of the cellulose are removed by known methods. The resulting viscose is stretched into threads in hot baths. The use of a minimum of 35% of CS_2 proportional to the cellulose content of the alkali cellulose is urged. Even better results are achieved by employing improved cellulose with a high content of alpha-cellulose. TTD: 2-48

Continuous rayon production. Process for producing rayon in continuous operation. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71701 VII/29a, Mar. 1942. PB 45523. *Bibl. Sci. Ind. Reports 4,*

340 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Methods are described for continuous operation, as in French P. 760 459 and 573 533, in which freshly spun threads are conducted over a series of rolls alternating above and below the bath surface. Such methods are being used for film production, but not for threads as they cannot be held separated. This application describes a simple method to overcome the difficulty, the freshly spun bundles of threads being attached to a clip which is clipped to a conveyor guiding them through the various baths. After the last bath the clip with the threads is taken off the conveyor, the threads are taken from the clip and wrapped around a reel or spool. The clips should be made of plastic or Al, the conveyor of any substance not reacting with the bath. TTD: 2-48

Viscose fiber. Process for producing artificial threads from viscose. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72362 IVc/29b, May, 1942. PB 45566. *Bibl. Sci. Ind. Reports 4,* 344 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Viscose having NaCl point 1.3, and such viscosity that a steel ball 3 mm in diameter falls 20 cm in 200 sec, is spun from annular nozzles with hollow mandrels by using such liquids for precipitation that the viscose is coagulated but not completely regenerated. The coagulates are stretched and subsequently regenerated to cellulose. TTD: 2-48

Spinning viscose. Process for spinning of viscose in spinning funnel with the use of wide orifice nozzles. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72618 IVc/29b, July, 1942. PB 45587. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 8 pp.; price $1.00 (Microfilm or Photostat).

Viscose having a Hottenroth number greater than 7 (giving an indication of age) is coagulated into threads having a circular cross section; the coagulation takes place in aqueous solutions with a considerable quantity of alkali salts and smaller amounts of free alkali. The threads are then converted into cellulose hydrate by the action of acid precipitants. TTD: 2-48

Drying artificial threads. Yarn machine for wet artificial threads of cellulose hydrate. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72929 VII/29a, Aug. 1942. PB 45613. *Bibl. Sci. Ind. Reports 4,* 348 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

The main feature is a metal cylinder extending the entire length of the machine, which rotates and may be heated from the inside by hot liquids or steam. It also has smaller rolls set at an angle to the cylinder. It makes

possible uniform drying of the threads in continuous operation. TTD: 2-48

Cuprammonia rayon. Process for producing crinkled threads, fibers, or ribbons from cellulose solutions in ammoniacal copper oxide. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72983 IVc/29b, Aug. 1942. PB 45609. *Bibl. Sci. Ind. Reports 4,* 348 (Jan. 24, 1947); 8 pp.; price $1.00 (Microfilm or Photostat).

Decomposition of the shapes leaving the nozzle is directed in such a way that an inner zone (core) and an exterior zone (mantle) form, both of which consists of cellulose hydrate, but differ in tension. By means of swelling agents, the difference in tension between core and mantle is equalized. TTD: 2-48

Seasoning viscose. Process for seasoning viscose. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72984 IVc/12o, Aug. 1942. PB 45615. *Bibl. Sci. Ind. Reports 4,* 348 (Jan. 24, 1947); 6 pp.; price $1.00 (Microfilm or Photostat).

The ripening process consists in heating and subsequent cooling to the desired final temperature. The invention uses a countercurrent of air or other gases, both for heating and cooling. The air may be circulating continually, or it may be released and fresh air used after each circulation. Three drawings explain the method. TTD: 2-48

Protein fibers I 3 b

Improving protein fibers. Giampiero Comolli (to Sandoz A-G.). USP 2 426 861, Sept. 2, 1947.

Casein fibers are impregnated with a solution of a Cr compound which is then converted into an insoluble compound by treating the fiber with a reducing agent. The treated fiber is improved in its resistance to fulling, friction and wear, to water, even in the presence of acid or alkali, and to ironing. Dyes are also absorbed and retained better than with untreated fibers. The action of the Cr compound on the casein is similar to chrome tanning of hides. TTD: 2-48

Hardening protein fiber. Francis C. Atwood (to Natl. Dairy Products Corp.). USP 2 428 603, Oct. 7, 1947.

Proteinaceous fibers are hardened by dispersing a protein, such as animal or vegetable casein, with an alkaline material, spinning the dispersion into an acidic coagulating bath, and then stretching the coagulated fiber. The fiber is next placed in a first-step hardening bath containing less than 5% formaldehyde, and an alkali-metal salt of a strong mineral acid, followed by a second hardening bath containing at least 5% formaldehyde and

an alkali-metal salt of a weak acid. The pH of both baths is maintained between 4.5 and 7.0 by means of buffer salts. TTD: 2-48

Zein fibers. Gordon F. Biehn & Edw. T. Cline (to E. I. duPont de Nemours & Co.). USP 2 429 214, Oct. 21, 1947.

Prolamine fibers are prepared by spinning an aqueous alkaline solution of a prolamine, preferably zein, comprising 10-20% of the prolamine and having a pH of at least 9, into an aqueous coagulating bath containing at least 0.1 wt.% of formaldehyde, 0.5-1 wt.% of a strong mineral acid, and at least 10 wt.% of a water-soluble inorganic salt. The filaments are given a preliminary hardening treatment with an aqueous solution of a protein hardening agent and a mixture of water-soluble inorganic salts, followed by stretching to at least 50% of their maximum draw ratio in a concentrated aqueous solution of a mixture of water-soluble neutral and acid-reacting salts, at a temperature of at least 50°C. The stretched filaments are finally hardened in an aqueous formaldehyde hardening bath having a pH of less than 8 and containing a mixture of water-soluble inorganic salts. The resultant fibers have a dry tenacity of at least 1.2 g/denier and a wet tenacity of 0.6 g/denier, as well as an elastic recovery from stretch and a modulus of elasticity close to those of wool. TTD: 2-48

Spinning casein. Process for hardening casein fibers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70710 IVc/29b, Oct. 1941. PB 45451. *Bibl. Sci. Ind. Reports 4,* 334 (Jan. 24, 1947); 2 pp.; price $1.00 (Microfilm or Photostat).

Aldehydes, especially HCHO, will harden casein fibers more effectively if water-soluble Zn salts are added to the spinning solution. TTD: 2-48

Synthetic fibers I 4

Polyurethanes. Polyurethanes. Otto Bayer, I. G. Farbenindustrie A-G. *Modern Plastics 24,* No. 10, 149-52, 250, 252, 254, 256, 258, 260, 262 (June, 1947). (See PB 126 35, OTS, U. S. Dept. Commerce.)

The polyurethane polymerization, also known as the diisocyanate method, makes it possible to produce plastics with desired properties by pure addition, starting with compounds of low molecular weight made either by preliminary condensation or polymerization. The easiest polyurethane to produce industrially is made by adding 1 mol of 1,6-hexane diisocyanate to 1 mol of 1,4-butylene glycol in a solution of monochlorobenzene. It is suitable for the production of fibers, plastics, and especially bristles. The product made from 1 mol of 1,6-hexane diisocyanate and 0.5 mols each of 1,4-butylene glycol and 2,2-dimethylol propene is elastic and well suited for impregnating and coating fabrics. TTD: 2-48

Polyvinylidene chloride. Plastic monofilaments are on their way. Anon. *Modern Plastics 24,* No. 12, 89-97 (Aug. 1947).

Polyvinylidene chloride can be used for monofilaments, multifilament film, extrusion, or molding. Qualities, problems, and color of the vinylidene group are discussed. Specific end products as woven fabrics, screening, tape, upholstery material, etc., are reviewed. TTD: 2-48

Saran. New synthetic fibers. Anon. *Can. Chemistry & Process Industries 31,* 1120 (Dec. 1947).

Saran, a plastic developed by Dow Chemical Co., is resistant to moisture, flame and mildew and can be spun into ultra-fine fibers. Chemically, it is a vinylidene chloride manufactured from petroleum and chlorine. TTD: 2-48

Synthetic fibers. Some general viewpoints as a result of recent fiber examinations. P. H. Hermans. *Chem. Weekblad 44,* No. 1, 2-7 (Jan. 3, 1948); *in Dutch.*

A brief review is given of the development of synthetic fibers, together with a discussion of the internal structure of the macromolecules. TTD: 2-48

Spinning of acrylonitrile polymers. Wm. W. Watkins (to E. I. duPont de Nemours & Co.). USP 2 426 719, Sept. 2, 1947.

Acrylonitrile is dissolved in a volatile organic solvent, such as dimethyl formamide, and the solution extruded through a shaped orifice into glycerol heated to 100°C or above. The yarn is passed under tension through the glycerol bath until coagulated. The yarns produced by this process are lustrous and any voids which may be present are not visible at a magnification of 500. They have a desirable tenacity and elongation which are retained at elevated temperatures. TTD: 2-48

Synthetic fiber. Gaetano F. D'Alelio (to Pro-phy-lactic Brush Co.). USP 2 426 728, Sept. 2, 1947.

Copolymers of acrylonitrile and of an ethylene alpha, beta unsaturated dicarboxylic acid are formed in the presence of another monomer of acrylic esters or vinyl ethers. These are soluble in nitrohydrocarbons, such as nitromethane, and these solvents may be used to produce a gel which exhibits a cohesive flow at 55-90°C and may be extruded into fibers and sheets. The gelation solvent is then partially or completely removed and the copolymer is cold-drawn from 100 to 500% of elongation. A plasticizer may be added to the solvent.

The product is chemically resistant and may be used for filter cloth, as well as for other textile applications. TTD: 2-48

Vinyl resins. Theophilus A. Feild, Jr. (to Carbide & Carbon Chemicals Corp.). USP 2 428 453, Oct. 7, 1947.

Elastic materials are made by coating a material made from a water-insoluble vinyl resin, formed by copolymerization of a vinyl halide with a vinyl ester of an aliphatic acid, with an elasticizer which is fixed in the yarn by application of heat within a temperature range of 40-110°C. These resins contain 80-95% of the halide in the polymer and have a macromolecular weight of at least 15,000. Suitable elasticizers are alkyl esters of dicarboxylic acids, wherein each alkyl group contains at least 4 C atoms, alkyl and aryl phosphates, and polyglycol esters of carboxylic acids having 6-8 C atoms in the molecule. TTD: 2-48

Vinyl cyanide. Chas. R. Harris (to E. I. duPont de Nemours & Co.). USP 2 429 459, Oct. 21, 1947.

Vinyl cyanide is prepared by subjecting succinonitrile vapor to pyrolysis at temperatures between 300 and 700°C in the presence of an inert material, such as glass, and an inert diluent gas, such as hydrogen. TTD: 2-48

Vinyl cyanide. Chas. R. Harris & Wm. C. Sharples (to E. I. duPont de Nemours & Co.). USP 2 429 460, Oct. 21, 1947.

Secondary reactions and decomposition of vinyl cyanide, prepared by catalytic reaction of acetylene with hydrogen cyanide, are inhibited by condensing the vinyl cyanide vapors in the presence of sufficient acidic material so that an aqueous extract obtained by shaking 1 part of condensate with 2.5 parts of water will have a pH below 4.6, said condensate containing less than 15% water based on the weight of the added acidic material. Suitable acidic materials are the common organic and inorganic acids and their acid-reacting salts. TTD: 2-48

Acrylonitrile. Imperial Chemical Industries, Ltd. Brit. P. 584 548. *Textile Mfr. 73,* 436 (Sept. 1947).

A solution of acrylonitrile polymer in a volatile organic solvent is extruded into a spinning bath containing 30-50 wt.% $CaCl_2$ heated to about 100°C, to produce filaments of high tenacity. TTD: 2-48

Solvents for cellulose derivatives. Process for joint treatment of mixed polyamides and cellulose derivatives. Deutsche Celluloid-Fabrik A-G. Ger. P. Appl. I 85990 IVc/39b, Sept. 1941. PB 45437.

Bibl. Sci. Ind. Reports 4, 332 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

Fluids containing hydroxyl groups are added to solutions of mixed polyamides in aliphatic alcohol-chlorinated hydrocarbon mixtures whose components do not contain more than 2 C atoms. These mixtures are used to dissolve the cellulose derivatives. The solutions are used for producing films, thin layers and varnishes. TTD: 2-48

Horse hair substitutes. Filling material for upholstery, or stiffening material, especially to replace horse hair. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70587 VII/86c, Oct. 1941. PB 45442. *Bibl. Sci. Ind. Reports 4,* 333 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

Substitutes for horse hair may consist of single fibers produced from polyamides. The different types of polyamides used were produced in accordance with USP 2 130 948 and 2 071 253. TTD: 2-48

Polyamide fabric. Manufacture of wide-mesh textiles. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70600 II/56a, Oct. 1941. PB 45443. *Bibl. Sci. Ind. Reports 4,* 333 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

The wide-mesh textiles may be produced from linear polyamides and used in the manufacture of furniture upholstery, fly screens, filters for centrifuges, and similar textiles. The types of polyamides mentioned are produced in accordance with USP 2 130 948 and 2 071 253. TTD: 2-48

Polyamide filaments. Manufacture of musical instrument strings. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70601 IXa/51c, Oct. 1941. PB 45444. *Bibl. Sci. Ind. Reports 4,* 333 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

The strings for musical instruments may be produced from synthetic linear polyamides, the basic compounds of which are produced according to USP 2 130 948 and 2 071 253. TTD: 2-48

Polyamide filament. Production of sport appliances. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70609 XI/77a, Oct. 1941. PB 45449. *Bibl. Sci. Ind. Reports 4,* 333 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

Threads made of synthetic linear polyamides are used with advantage in the manufacture of sporting goods. Most suitable for this purpose are polyamides with viscosity 0.6-2, which as a rule guarantees high tensile strength. The threads serve for reinforcing golf clubs and as bowstrings and tennis strings. TTD: 2-48

Dialysis of alkalis. Process for producing dialysis membranes. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70652 IVb/12d, Oct. 1941. PB 45448. *Bibl. Sci. Ind. Reports 4,* 333 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Dialysis membranes suitable for alkaline liquids may be made of textile, felt, or paper produced from high polymer hydrocarbons. For this purpose a semipermeable membrane of regenerated cellulose is applied to sheets of polymeric material and hardened with HCHO. Inorganic chemicals (such as metal hydroxides or salts), which are insoluble in lye, are precipitated on the membrane to make it more dense. The semipermeable membrane of cellulose thus prepared adheres to its base of polymeric hydrocarbons even after prolonged passage of the strongest lyes. The purification of lye by dialysis through such membranes is highly satisfactory. See also PB 45477. TTD: 2-48

Wool-like nylon. Process for producing wool-like fibers from polyamides. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70879 IVc/29b, Nov. 1941. PB 45459. *Bibl. Sci. Ind. Reports 4,* 334 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

Curled, wool-like fibers can be obtained from synthetic linear high polymers, especially polyamides and polyurethanes, by treating the fibers with aqueous or alcoholic solutions of inorganic salts which, in heated methanol solution, dissolve or swell the synthetic polymers (methanol-soluble salts of the alkaline-earth metals, especially $CaCl_2$). TTD: 2-48

Polyamides. Apparatus for continuous manufacture and spinning of polyamides. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70942 XII/39a, Nov. 1941. PB 45490. *Bibl. Sci. Ind. Reports 4,* 337 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

The apparatus consists of high pressure and vacuum parts. The former is connected with a high pressure feed pump for continuous conveying of the material, and also with a vacuum pipe through an expansion valve, serving for the elimination of volatile by-products. The invention is based on the following principle: after fusing, the starting material is allowed to pour into a pump which slowly forces the mass through a heated high-pressure coil. After each particle has traveled through the coil for the time necessary for polymerization, the final polymer forms at the outlet of the coil. By subsequent introduction of the mass into a vacuum the volatile portions are driven out of the polymer, so that a product ready for spinning results. A flow sheet is included. TTD: 2-48

Polyamide. Process for producing fibers and flat shapes from polyamide solutions. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71054 IVc/29b, Dec. 1941. PB 45470. *Bibl. Sci. Ind. Reports 4,* 335 (Jan. 24, 1947); 15 pp.; price $1.00 (Microfilm or Photostat).

Fibers and flat shapes from solutions of polyamides in volatile neutral solvents are obtained by adding to the solutions reactive substances with at least 2 alkyleneimine groups. After forming, the products are heated until the solubility has decreased considerably. Tertiary 1,2-alkyleneimines are used. Besides these substances, other mono- or polyvalent agents can be added which have exchangeable hydrogen. TTD: 2-48

Polyamides. Process for preparation of easily workable linear high-polymeric polyamides. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71739 IVc/39c, Mar. 1942. PB 45528. *Bibl. Sci. Ind. Reports 4,* 341 (Jan. 24, 1947); 6 pp.; price $1.00 (Microfilm or Photostat).

Polyamides with comparatively low melting points (and preferably with primary or secondary amino groups at both ends of the chain) are condensed in molten form with aryl esters of polycarboxylic acids, especially diaryl esters of dicarboxylic acids (the amounts to be adjusted to the number of amino groups present). TTD: 2-48

Filament. Process for producing threads from synthetic materials which cannot be worked thermoplastically. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72460 VII/29a, June, 1942. PB 45577. *Bibl. Sci. Ind. Reports 4,* 345 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Solutions of the specified materials are poured into sheets; these are then stretched and divided into endless fibers and spun into endless threads. The materials suggested for use are polymers of acrylonitrile or a symmetric dichloroethylene. The final products resemble filament rayon skeins. TTD: 2-48

Vinyl fiber. Process for producing threads, wires, ribbons, etc., from thermosensitive polymeric vinyl compounds in 2 stages. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72607 VII/29a, July, 1942. PB 45584. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

The materials are ejected from a nozzle with several holes, under high pressure and at a temperature below liquifying; they are then stretched for only 3-30% of the length of those threads coming out fastest. They then are brought to a temperature where they just begin to be plastic, and stretched to the desired firmness. TTD: 2-48

Synthetic fiber. Process for producing high-melting superpolyesters. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72616 IVc/39c, July, 1942. PB 45586. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 6 pp.; price $1.00 (Microfilm or Photostat).

Polymeric tetramethylene terephthalates of low to intermediate molecular weight with OH and/or COOH terminal groups are reacted in heat with diisocyanates. The reaction of butanediol-1,4 and terephthalic acid dichloride furnishes the starting material, tetramethylene polyterephthalate. The final N-containing polyesters can be used for the production of fibrous materials. For prior application I 66330 IVc/12o, see PB 31635. TTD: 2-48

Synthetic fibers. Process for preparation of superpolymers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72663 IVc/39c, July, 1942. PB 45589. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Diisocyanates, diisothiocyanates, or substances which form them, are heated to over 70°C with linear polysulfones which on both ends are substituted with groups which react with isocyanates (*e. g.,* OH, SH, COOH or NH_2). In addition, these polysulfones must have at least 3 C atoms between the sulfone groups. The N- and S- containing superpolymers thus obtained can be used for the production of artificial fibers, films, or plastics. TTD: 2-48

Crimped fibers. Process for producing wool-substitute fibers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72683 IVc/29b, July, 1942. PB 45590. *Bibl. Sci. Ind. Reports 4,* 346 (Jan. 24, 1947); 7 pp.; price $1.00 (Microfilm or Photostat).

A modification is claimed for application P 76756 IVc/29b by which are produced fibers, which serve as a wool substitute, from synthetic linear high polymers, especially polyamides. Crimping takes place under the influence of heat, preferably between 100° and 200°, and with the assistance of water vapor or hot swelling agents which do not dissolve the polymers. TTD: 2-48

Polyamides. Process for preparing fibers and flat shapes from linear polyamides. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72756 IVd/8k, July, 1942. PB 45599. *Bibl. Sci. Ind. Reports 4,* 347 (Jan. 24, 1947); 19 pp.; price $1.00 (Microfilm or Photostat).

To the material to be refined there are added solutions or aqueous dispersions of aromatic polyhydroxy compounds, especially tanning matter of the

gallotannin series, or similar substances. If aqueous polyphenol solutions are used, the temperature must be gradually increased. Electrolytes should be present, especially those which prevent electrostatic charge. In the use of aqueous tannin solutions, small amounts of tannin-precipitating or coloration-producing agents should be present. Fixing agents, organic bases, metal compounds or combinations of these are used for the subsequent treatment of the polyamides. TTD: 2-48

Polyamides. Process for preparing shaped forms from synthetic linear thread-forming polyamides. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72767 IVc/29b, July, 1942. PB 45600. *Bibl. Sci. Ind. Reports 4,* 347 (Jan. 24, 1947); 6 pp.; price $1.00 (Microfilm or Photostat).

The polyamides are heated with dilute aqueous solutions of aromatic dihydroxy compounds (*e. g.,* hydroquinone, catechol, resorcinol, alpha- and beta-naphthohydroquinone) but below the boiling point of the aqueous solutions. Water-soluble plasticizers, if not already included in the polyamides, should be added. Subsequently the products of reaction are treated with aliphatic aldehydes. TTD: 2-48

Polyamide plastics. Process for preparing polyamide or polyurethan plastics of linear structure. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72875 IVc/39c, Aug. 1942. PB 45604. *Bibl. Sci. Ind. Reports 4,* 347 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Urethan-N-carboxylic acids, with either a chain of at least 5 atoms between the carboxyl and the carbamate groups or divalent alkyl esters of carbamic acid with a chain of at least 2 atoms between the carbamate groups, are heated with diols and, if necessary, other compounds capable of being condensed with carbamic groups, such as diamines and/or dicarboxylic acids. TTD: 2-48

Polyethylene halide fibers. Process for achieving the highest tensile strength in the production of threads from polyethylene halides. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72892 IVc/29b, Aug. 1942. PB 45606. *Bibl. Sci. Ind. Reports 4,* 347 (Jan. 24, 1947); 6 pp.; price $1.00 (Microfilm or Photostat).

The threads, already having been twisted and stretched in the spinning baths, are stretched a second time in hot inert liquids at 100-140°C to 5 times their original length. Glycerol may be used for the stretching bath. Polyvinyl chloride and polymerized dichloroethylene are among the plastics mentioned. TTD: 2-48

Fiber applications I 5

Bristles. Harvey A. Neville & Thos. G. Harris (to Devoe & Raynolds Co., Inc.). USP 2 426 896, Sept. 2, 1947.

Synthetic bristles for paint brushes, tapered to resemble natural bristles, are made by passing a number of filaments through a coating bath and varying the speed as they emerge from the bath so that the coatings will form zones of varying thickness on the filament cores. As the coated filaments leave the coating bath, they are given a preliminary drying and subsequently are passed through a baking or hardening oven under constant tension. They are then cut into bristle lengths at the points of maximum and minimum diameter. The coating bath is kept near the gelation point of the plastic so that the coating gels almost immediately on withdrawal of the filaments. The bristles are resistant to water and to the solvent present in paints. TTD: 2-48

Dyed composite felt. Geo. M. Rickus, Stanley G. Hoffman & Bernard H. Archer (to Hat Corp. of Am.). USP 2 429 073, Oct. 14, 1947.

Feltable fibers for use with animal fibers in dyed felt are prepared by dyeing cotton or other non-animal fibers the color of the fur with which it is to be used. The fibers are then impregnated with an aged solution of 2-10% melamine, 4-9% HCl (32%), 4-10% formaldehyde, 0.5-2% of a softener, and the balance water, to impart center-seeking characteristics thereto and to provide a resinous coating which has a strong affinity for acid dye and is insoluble in water and acid at temperatures up to 212°F. The fibers are dried at 190-195%F and mixed with the fur. This mixture is formed into a hat body having fur fibers on the exterior and the cotton fibers in the center of the felt. The complete felt is then dyed at temperatures up to 212°F (*Cf.* USP 2 355 598, Aug. 8, 1944 (TTD: *1*, No. 3, 3)). TTD: 2-48

Fiber-reinforced cone. Edw. C. Sloan (to Hawley Products Co.). USP 2 429 431, Oct. 21, 1947.

Fiber-reinforced plastic cones having elongated, almost parallel side walls for holding thread in textile machines are prepared by forming an accreted fibrous carcass impregnated with resin, drying the carcass and suspending it coaxially between, but out of contact with, separated heated dies. The dies are moved together as the carcass is released to occupy the cavity between the dies, and at the same time pressure is applied to the dies and maintained for the desired time. Synthetic, thermoplastic, thermosetting or natural resins may be used. TTD: 2-48

Hatting fur treatment. Jos. F. Melody. USP 2 429 476, Oct. 21, 1947.

Treatment of formed fur hat bodies to increase the weight and felting properties of the fur and the quality of the felt consists in dipping the body, which has been felted and partially shrunk, in a solution of quebracho extract and sulfonated castor oil sufficient to increase the weight of the body from 1-25%. The body is then dried, and the shrinking and other finishing operations are completed. TTD: 2-48

Fiber processing I 6

Oiling fibers. Oiling technique. G. Nitschke. *Melliand Textilber. 27,* 299-303 (1946); *28,* 61-2 (1947); *Chimie et Industrie 58,* 481 (Nov. 1947).

The technique of oiling textile fibers is described in detail and both the advantages and disadvantages of various oiling agents are given. Oil-in-water emulsions of mineral oil seem to give the best results. TTD: 2-48

Treating filaments with liquid. Brit. Celanese, Ltd. Brit. P. 584 663. *Textile Mfr. 73,* 436 (Sept. 1947).

Traveling filaments are treated with a liquid in a closed chamber having outlet orifices for the material, the axis of each orifice being at an angle less than 90° to the general direction of travel of the material. TTD: 2-48

INORGANIC FIBERS II

Fiberglas bucket. 4-part polyester impregnated glass mat bucket. Anon. *Modern Plastics 24,* No. 12, 112-14 (Aug. 1947).

Fabrication methods for a new low-pressure molded Fiberglas mat polyester resin minnow bucket are described. TTD: 2-48

Glass-mat material. Glass-mat material. Anon. *Modern Plastics 24,* No. 12, 162 (Aug. 1947).

A brief note on Polyplastex sheets, resin-impregnated glass-mat materials, that may be used in lamp shades, screens, and wall paneling. TTD: 2-48

Glass-reinforced plastic. Howard W. Collins (to Owens-Corning Fiberglas Corp.). USP 2 428 654, Oct. 7, 1947.

The resinous bond in laminated plastic sheets of glass fiber fabrics is improved by the incorporation within the resin of an independent fibrous structure of glass fibers with an average diameter of 0.00004" and a length of 30-100 times the diameter, thus providing a continuous fiber structure perpendicular to the major surface of the laminate. TTD: 2-48

Fine glass fibers. A. P. Thurston. Brit. P. 584 454. *Textile Mfr. 73,* 436 (Sept. 1947).

In forming fine glass fibers, a rotary glass melting unit collects the molten glass on a revolving plate and then discharges it by centrifugal force into the atmosphere as a thin film to attenuate it to fibrous form. TTD: 2-48

FIBER TO YARN III

Fiber preparation III 1

Builder motion. Speed frame builder motion. Anon. *Platt's Bull. 5,* 169-71 (July-Aug. 1947).

This improved builder motion provides an easy means of adjustment when altering the hank and dispenses with the need for changing the ratchet wheel. A formula for calculating the change wheels for any desired hank and a table of change wheels for various hanks are given. TTD: 2-48

Distribution equipment. Electropneumatic distribution equipment. Anon. *Platt's Bull. 5,* 150-6 (May-June, 1947).

Erecting, setting, maintenance, and correction of faults for electropneumatic distribution equipment for single process blowing room layouts are discussed. TTD: 2-48

Noble comb. Noble comb stop motion. Anon. *Textile Recorder 64,* No. 758, 50-1 (May, 1946).

An illustrated description of the Noble comb stop motion. TTD: 2-48

Sliver condenser. Sliver condensing at card. Anon. *Platt's Bull. 5,* 202 (Sept.-Oct. 1947).

An illustrated description of the Platt-Tweedale sliver condenser. Less replacement at the back of the draw frame and fewer piecings in the sliver are obtained by application of this condenser. TTD: 2-48

Sliver condensing. Sliver condensing and waste prevention at drawing frame. *Platt's Bull. 5,* 166-7 (July-Aug. 1947).

An illustrated description of the Duple condenser and waste preventer which has been designed to give close condenser-roller nip setting. This device also allows correct functioning of the stop motion, thus preventing waste from choked condensers. TTD: 2-48

Blended fibers. Process for producing stretchable blended sliver, rovings, or laps. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71990 VII/76b, Apr. 1942. PB 45542. *Bibl. Sci. Ind. Reports 4,* 342 (Jan. 24, 1947); 2 pp.; price $1.00 (Microfilm or Photostat).

Even before comminution, fibers of different types and strength are joined in the form of fibrous hanks, and then mixed. The mixed fibrous hanks are then comminuted and shaped into skeins. For application I 69876 VII/29a regarding rovings, see PB 34253. TTD: 2-48

Curled fiber laps. Process for producing uniformly curled fiber laps. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72323 VII/29a, May, 1942. PB 45568. *Bibl. Sci. Ind. Reports 4,* 344 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

Thread strands are made from water-resistant artificial fibers (which have a lens-like cross section) by changing the cross section into a rectangular shape. Then the threads are curled by mechanical means and the curled fleece is subjected to a second equalization process. TTD: 2-48

Roving. Modification of apparatus for cutting endless artificial bands and their conversion into stretchable rovings. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72469 VII/29a, June, 1942. PB 45598. *Bibl. Sci. Ind. Reports 4,* 347 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

For prior application, see PB 34698. The opposing edge cooperating with the helical knifing edge of the cylindrical roller is not arranged parallel, but inclined to the axis of the cylindrical roller. TTD: 2-48

Synthetic sliver. Process for producing inherently durable slivers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72503 IVo/8k, June 1942. PB 45579. *Bibl. Sci. Ind. Reports 4,* 345 (Jan. 24, 1947); 2 pp.; price $1.00 (Microfilm or Photostat).

Slivers of synthetic linear polyamides, copolymers, or polyurethans may be subjected to a fulling process by means of pressure, friction and heat in the presence of acidic liquids. The procedure is feasible with the aid of the usual fulling appliances. TTD: 2-48

Blends III 2

Rayon-woolen blends. Spun rayon in worsted-type fabrics. Pierre Sillan, Am. Viscose Corp. *Indian Textile J. 58,* 56, 58 (Oct. 1947).

Garbardines and tropical fabrics are well suited for

viscose rayon and wool blends. Serges and flannels are also attractive. These blends may be cross-dyed effectively. TTD: 2-48

Mixed yarn. Mixed yarn with dimensional stability. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71418 VII/76c, Jan. 1942. PB 45488. *Bibl. Sci. Ind. Reports 4,* 337 (Jan. 24, 1947).

This mixed yarn is manufactured by mixing components with stable stretch properties which differ; for example, a strand of endless fiber bands with a strand produced from rayon staple fiber by a normal spinning process. TTD: 2-48

Spinning III 3

Locking motions. Ring frame locking motion. Anon. *Platt's Bull. 5,* 172-4 (July-Aug. 1947); *Textile Mfr. 73,* 445-6 (Oct. 1947).

Illustrated descriptions of locking motions for belt- or rope-driven ring frames and V-rope drive or direct-coupled motor ring frames are given. These locking motions make it impossible to start a frame when any of the gearing-end doors or draft wheel covers are open, and the doors or covers cannot be opened while the frame is running. TTD: 2-48

Long staple rayon. Spinning long staple rayon. S. A. G. Caldwell. *Textile Mfr. 73,* 369-71, 403-4, 457-60 (Aug., Sept., Oct. 1947).

Blend possibilities for long staple rayon are discussed; and the sorting, blending, and preliminary opening processes for rayon are briefly reviewed. Details of carding on the woolen and worsted systems are given. Various types of drawing frames and drafting control for rayon are also considered. TTD: 2-48

Spindle standardization. Standardization (spindles). Anon. *Platt's Bull. 5,* 156-9 (May-June, 1947).

A discussion of standardization of spindles used on ring spinning and doubling frames. Various factors influence spindle standardization as: lift of the frame, diameter of the ring, method of oiling, etc. TTD: 2-48

Spinning. Fixers should know how to set builder. F. H. Gunther & Marcus Gross. *Textile World 97,* No. 10, 139, 141 (Oct. 1947).

An instruction sheet on changing the build of bobbins from filling wind to warp wind is given. LCL TTD: 2-48

Spinning calculations. Spinning calculations simplified. Anon. *Platt's Bull. 5,* 179-93 (Sept.-Oct. 1947).

A series of graphs and explanatory notes dealing with the relation of staple lengths to counts spun and with the range of drafts and hank rovings at the ring spinning frame for different types of drafting systems for cotton. TTD: 2-48

Spinning rayon staple. Rayon staple spins well on worsted system. Anon. *Textile World 97,* No. 10, 129, 131, 196, 198, 200 (Oct. 1947).

Preparing rayon staple for processing on the worsted system differs from its preparation for the woolen system in that the blending of rayon and wool does not occur until the drawing process. Rayon staple fibers require less opening than wool. Carding of rayon staple is similar to that of wool. In gilling, there is a tendency for the rayon to pack down. (This article is condensed from a chapter of "Rayon Technology," to be published soon by McGraw-Hill Book Co.) TTD: 2-48

Lubricating cap spindle. E. Briggs. Brit. P. 584 397. *Textile Mfr. 73,* 436 (Sept. 1947).

A device for lubricating the cap spindles of spinning, twisting, and drawing frames, consists essentially of a thick pad which rests in the cup formed in the lifter plate through which the spindle passes. TTD: 2-48

Spinning spindle. Double wire yarn spindle. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70903 VII/76c, Nov. 1941. PB 45481. *Bibl. Sci. Ind. Reports 4,* 336 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

A yarn spindle stops spinning at the moment the thread breaks. This is achieved by means of an intercepting hook set in motion through a lever system upon breaking of the thread. A diagram is included. TTD: 2-48

Winding III 4

Cop winding machine. Improved jute cop winding machine. Anon. *Textile Recorder 64,* No. 758, 45-6 (May, 1946).

An illustrated description of a cop winding machine, suitable for jute, hemp, sisal, paper and flax yarns. The machine has an independent spindle drive which reduces noise to a minimum. A good firm package can be obtained on this machine. TTD: 2-48

Pirn winder. New British pirn winding machine. Anon. *Textile Recorder 64,* No. 758, 38-9, 59 (May, 1946).

Details of a high speed pirn winding machine that is suitable for a wide range of yarns are given. TTD: 2-48

Winding. Spindleless redraw winds 500 yds. per min. Anon. *Textile World 97,* No. 11, 162 (Nov. 1947).

Sipp-Eastwood's new machine, providing for smooth traverse, quick doffing, and higher speeds is briefly described. TTD: 2-48

Winding control. Winding tension and density control. Anon. *Textile Mfr. 73,* 353, 356 (Aug. 1947).

An illustrated description of the Kidde tension and density control motion with details of operation is given. This new device is economical to operate, will permit high winding speeds, reduces waste, and provides uniform package weight and length. TTD: 2-48

Winding device. Apparatus for depositing a thread or a bunch of threads on a pair of rolls. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72930 VII/8a, Aug. 1942. PB 45614. *Bibl. Sci. Ind. Reports 4,* 348 (Jan. 24, 1947); 4 pp.; price $1.00 (Microfilm or Photostat).

The apparatus consists of an elastic tube, open on one side, which can be slipped over one of the rolls, and which has a hook where the thread can be fastened. TTD: 2-48

Yarn processing III 5

Steaming yarn. Crepe and hosiery yarn steaming. Anon. *Textile Mfr. 73,* 411 (Sept. 1947).

The Sanderson H/Unit Model vacuum steaming machine is based on the principle of injecting steam into a yarn container from which the air has been evacuated. Quick and even penetration throughout the yarn package is thus obtained. TTD: 2-48

Throwing plant. Throwing plant has many-sided program. C. W. Bendigo, Textile World. *Textile World 97,* No. 11, 127, 129, 131, 218, 220 (Nov. 1947).

An illustrated description of the throwing plants of Martin Fabrics Corp., which processes nylon principally. TTD: 2-48

Viscose rayon treatment. Aftertreatment of pot spun viscose rayon. Anon. *Platt's Bull. 5,* 161-6 (July-Aug. 1947).

The chemical processes that comprise the usual aftertreatment are discussed, and the Dobson & Barlow combined hank washing and bleaching machine is described and illustrated. TTD: 2-48

Yarn products III 6

Gold thread. Gold thread industry in Madras. V. G. Ramakrishna Ayyar. *Indian Textile J. 57,* 1072-3 (Sept. 1947).

Gold thread consists of finely flattened silver wire plated with gold after it has been coiled on silk. It is used for embroidery and borders on more expensive cloths. A review of its manufacturing processes in India is given. TTD: 2-48

Nylon rope. Nylon rope heads for new markets. Raymond E. Miskelly, Plymouth Cordage Co. *Modern Plastics 24,* No. 12, 121-3 (Aug. 1947).

The 3 operations in nylon ropemaking are spinning the yarns, forming the strands, and laying the rope. High strength, resistance to abrasion and deterioration, and elasticity are outstanding advantages found in nylon rope. It may be used as tow lines, climbing rope, lariat rope, etc. TTD: 2-48

YARN TO FABRIC IV

Yarn preparation IV 1

Size mixture. Starch handler eliminates waste. Anon. *Textile World 97,* No. 11, 160 (Nov. 1947).

Starch size mixtures are accurately measured and automatically handled in a new starch-control machine (Champion Machinery Co.) which is briefly described. TTD: 2-48

Slasher. New hot-air slasher installed at Avondale Mills. W. E. Williams, Avondale Mills. *Textile World 97,* No. 10, 133, 190, 192 (Oct. 1947).

Increased production, better quality, and lower costs are claimed for a gas-fired air drier in the slasher. Single-end drying and round yarn are also claimed.
LCL TTD: 2-48

Slashing rayon. "Monofilizing" main aim of rayon slashing. Anon. *Textile World 97,* No. 10, 115, 186, 188, 190 (Oct. 1947).

"The principal reason for warp sizing rayon is to nearly 'monofilize' each end." The low wet-strength of rayon makes its slashing different from cotton slashing. Stretch, temperature, materials, and properties are discussed. (This article is a brief condensation of a book "Rayon Technology," soon to be published by McGraw-Hill Book Co.)
LCL TTD: 2-48

Warp sizing. Slashing practices receive close attention. Anon. *Textile World 97,* No. 11, 145, 147, 236, 240, 244, 248, 252, 256, 258 (Nov. 1947).

Slashing and weaving practices are considered in a round-table discussion at the fall meeting of Georgia mill men.

LCL TTD: 2-48

Weaving IV 2

Installing loom parts. New method cuts time to install loom parts. Anon. *Textile World 97,* No. 10, 118-19 (Oct. 1947).

Modernization of the weave room at Revolution Cotton Mills includes revised cloth winding, horizontal braces ("spreaders") between loom sides, and new flywheel drives. Maintenance and overhauling are reduced. Pick speed is reported as increased 11% at a greater production efficiency.

LCL TTD: 2-48

Silk and rayon loom. New model silk and rayon loom. Anon. *Textile Mfr. 73,* 409-10 (Sept. 1947).

An underpick fast reed loom for weaving silk and rayon is described with details of the weighting, drop box, take-up, and center weft fork motions, the crankshaft, clutch, etc. TTD: 2-48

Tying-in. Progressive steps—warp to loom. W. Middlebrook, Brocklehurst Whiston Amalgamated, Ltd. *Textile Mfr. 73,* 397-8 (Sept. 1947).

A discussion of some of the factors to be considered during the gaiting of a plain warp. TTD: 2-48

Weave faults. Wild filling can be easily studied. C. D. Brown, Textile Engineering Service, Inc. *Textile World 97,* No. 11, 114-15 (Nov. 1947).

Many faults in weaving can be found promptly, without darkening the weave room, by use of high-intensity stroboscopic flashes, dark glasses being worn by the operator.

LCL TTD: 2-48

Weaving in India. Automatic weaving in India. Unicorn. *Indian Textile J. 57,* 1005-7 (Aug. 1947).

The need of automatic looms in India and their benefit to Indian industry are discussed. TTD: 2-48

Weighting warps. Weighting of warp. W. Middlebrook, Brocklehurst Whiston Amalgamated, Ltd. *Textile Mfr. 73,* 448-50 (Oct. 1947).

Warp weighting motions or negative let-offs are reviewed. A discussion of lever connections, weighting methods, use of ropes and chains, etc., is given; and factors that influence loom performance are discussed. TTD: 2-48

Woolen fabrics. Craftsmanship in wool. Geoffrey Rhodes. *Indian Textile J. 57,* 1002-4 (Aug. 1947).

A brief review of the history of woolen cloth production in Britain and of the new gossamer cloths.

TTD: 2-48

PRACTICE IN COTTON SPINNING AND WEAVING. B. B. Joshi. Technical & Commercial Publications, 81, Alkapuri, Baroda; price Rs. 4-0-0.

Reviewed in *Indian Textile J. 58,* 71 (Oct. 1947).

TTD: 2-48

YARN AND CLOTH CALCULATIONS. Lloyd H. Jackson. Textile Book Publishers, Inc., 303 Fifth Ave., New York 16, N. Y.; 204 pp.; price $6.00.

Reviewed in *India Rubber World 117,* 268 (Nov. 1947).

TTD: 2-48

Knitting IV 3

Embroidery plating. Embroidery plating. H. Wignall. *Textile Mfr. 73,* 354-6 (Aug. 1947).

Embroidery plating is the use of warp-knitted threads on a weft-knitted background for ornamental purposes and ladder-proof fabrics. The Autoswift Model E wrap thread or embroidery plating machine is described and illustrated, and some details of a pattern knitted on it are given. TTD: 2-48

Full-fashioned hosiery. Modern fully-fashioned hose. H. Wignall. *Textile Mfr. 73,* 400-2 (Sept. 1947).

Details of manufacture for full-fashioned hosiery are given, and features of the Bentley-Cotton machine are described. TTD: 2-48

Hosiery. Instruction saves half-hose quality. Chas. W. Arrowood, N. C. Vocational Textile School. *Textile World 97,* No. 11, 137, 139 (Nov. 1947).

Some practical suggestions for maintaining uniform quality in knitting socks (on a Banner wrap-reverse machine) are given. TTD: 2-48

Knitting machine. New rib circular knitting machine. Anon. *Textile Recorder 64,* No. 758, 40-1 (May, 1946).

The Model R. T. R. Wildt rib circular knitting machine is a basic model to which various attachments may be added. The machine is suitable for knitting underwear and outerwear, particularly of the combined stitch and loop transfer design type, and any standard type of yarn may be used. TTD: 2-48

Knitting machines. Fine gage fully-fashioned hose. Anon. *Textile Mfr. 73,* 465-7 (Oct. 1947).

Developments in knitting machinery are discussed, with

some details of the "Combi" system, Einsiedel heeler, Kalio heeler, Auto-Heeler, and the Wildman machine.
TTD: 2-48

Seamless hosiery. Modern seamless hose production. H. Wignall. *Textile Mfr. 73,* 454-5, 460 (Oct. 1947).

A review of some details of knitting seamless hosiery. Quality control, mechanical details, stitch adjustment, and other important factors in knitting are discussed.
TTD: 2-48

Tricot knitting machine. Robaczynski tricot is easy to adjust. Anon. *Textile World 97,* No. 11, 164 (Nov. 1947).

A brief note, with illustrations, on a machine that handles fabrics 90, 168, or 180" wide. TTD: 2-48

Knitting machine hydraulic drive. G. Wilders & J. E. Lynam (to Wm. Cotton, Ltd.). Brit. P. 584 511. *Textile Mfr. 73,* 436 (Sept. 1947).

On a knitting machine, means are provided for collecting hydraulic fluid as it leaks out and returning it from the collector to the hydraulic circuit, preferably by means of a pump.
TTD: 2-48

Knitting machine needle. S. J. Everett. Brit. P. 584 637. *Textile Mfr. 73,* 436 (Sept. 1947).

A knitting machine needle is formed from a strip of wire with one end bent in the shape of a hook and the main portion bent so that its cross section is converted to an annular shape.
TTD: 2-48

Hosiery knitting. C. Short & J. H. Painter (to Bray & Sons, Ltd.). Brit. P. 584 766. *Textile Mfr. 73,* 438 (Sept. 1947).

Improved means for controlling the takeup and release of a splicing thread used for providing the cuban, also reinforcing the ankle and foot bottom comprise a device for frictionally gripping and tensioning the splicing thread.
TTD: 2-48

Special fabrics IV 4

Carpet looms. Axminster carpet looms. Anon. *Platt's Bull. 5,* 142-7 (May-June, 1947); *Textile Mfr. 73,* 366-8 (Aug. 1947).

The Platt single insertion split shot Axminster carpet loom produces tufted carpet similar in construction and appearance to oriental carpets made on hand looms. Illustrated descriptions of this loom and a spool winding machine for the tuft material are given. A diagrammatic sketch of weave for the foundation fabric is also shown.
TTD: 2-48

Lace. British lace industry. Anon. *Textile Mfr. 73,* 393-4 (Sept. 1947).

In a summary of the Lace Working Party Report cleaning and maintenance of lace machines are discussed, and recommendations for future production are given.
TTD: 2-48

Pile carpet knitting. British patent covers pile carpet knitting. Harry Wignall, Leicester College of Technology. *Textile World 97,* No. 11, 149 (Nov. 1947).

A nonelastic pile fabric is composed of a base knitted structure and a laid-in, pile-forming filling yarn retained by the knitted loops. The filling yarn is pretreated with polyvinyl acetate.
LCL TTD: 2-48

Fabric processing IV 5

Calender control. Photocell counting control. Anon. *Textile Mfr. 73,* 374 (Aug. 1947).

An electronic installation on a calender machine which measures the amount of fabric passing over the steam heated rollers is briefly described. TTD: 2-48

Processing machinery. Recent improvements in finishing machinery. Anon. *Textile Recorder 64,* No. 758, 42-4 (May, 1946).

A review of some improvements in fabric processing machinery (as singeing machines, calenders, pre-crepe embossing machines, etc.). TTD: 2-48

Open-width steaming. Elimination of kier boiling process by alkaline steaming. Narhari H. Shah. *Indian Textile J. 57,* 1102-6 (Sept. 1947).

The Mathieson continuous open-width steamer and its operation are described and illustrated with a diagrammatic sketch. The use of the steamer for bleaching is discussed.
TTD: 2-48

Crinkled fabrics. Albert S. Jones & Gerald B. Stackpole (to Cranston Print Works Co.). USP 2 429 935, Oct. 28, 1947.

Crinkled cloth is made by printing standard texture cloth, which has been stretched warp-wise, with localized areas of a hardenable melamine formaldehyde resin resist, after which the resin is insolubilized. The cloth is then subjected to a Sanforizing operation which shrinks the non-printed areas and causes the resist printed areas to crinkle. An interesting effect may be obtaind by glazing the cloth prior to hardening the resin; after final hardening, washing and shrinking, only the crinkled resin printed parts will remain glazed. TTD: 2-48

Yarn setting. Textile Machine Works. Brit. P. 584 387. *Textile Mfr. 73,* 436 (Sept. 1947).

A device for subjecting nylon-type fabrics to a setting treatment comprises a chamber having closures operated by fluid pressure and electrically controlled.

TTD: 2-48

Continuous drying. United Merchants & Mfrs., Inc. Brit. P. 584 453. *Textile Mfr. 73,* 436 (Sept. 1947).

In a continuous drying process, wet fabric is passed through a radiant heat chamber in which it is exposed to the heat from incandescent refractory bodies, and then is passed through a convection heat chamber where it is further dried by hot gases of combustion. TTD: 2-48

Fabric applications IV 6

Laminates. Making and using thermoplastic laminates. Anon. *Modern Plastics 24,* No. 6, 91-5 (Feb. 1947).

The production of thermoplastic laminates by coating a fabric with thermoplastic molding powder, laminating, and then drawing into the final article is described. Products that may be formed from the laminated material are reviewed. TTD: 2-48

Lamp shade. Lamp shade that glows in dark. Anon. *Modern Plastics 24,* No. 6, 98 (Feb. 1947).

A brief note on a new lamp shade which is made from a low pressure laminate of resin and glass floss and coated with a phosphorescent pigment which is activated by exposure to artificial light. TTD: 2-48

Low-pressure laminates. Economics of low pressure plastics. Anon. *Modern Plastics 24,* No. 8, 95-104 (Apr. 1947).

Properties, applications, economics, and future of low pressure laminates are discussed. TTD: 2-48

Glass polishing material. Wm. Whitehead (to Celanese Corp. of Am.). USP 2 428 443, Oct. 7, 1947.

Fabrics of regenerated cellulose yarns, to be used in cleaning highly polished glass surfaces, are prepared by complete saponification of continuous-filament yarns consisting of a cellulose ester such as cellose acetate or cellulose nitrate. These fabrics leave the glass surfaces lint-, dust-, and static-free. TTD: 2-48

Polyvinyl chloride coating. John H. McGill & Leslie B. Morgan (to Imperial Chemical Industries Ltd.). USP 2 428 716, Oct. 7, 1947.

Coated fabric supports are prepared by applying to the support a base coating of an aqueous emulsion of polyvinyl chloride and from 30 to 100% thereof of a plasticizing agent and subsequently removing the water. A second coating containing polyvinyl chloride and a

plasticizing agent is applied, and the coated fabric is heated until gelantinization occurs. Suitable plasticizing agents are esters of phosphoric, phthalic or benzoic acid, or chlorinated hydrocarbons such as para-dichlorobenzene. TTD: 2-48

Safety glass. I. G. Farbenindustrie A-G. Ger. P. Appl. I 70729 IVa/39b, Oct. 1941. PB 45452. *Bibl. Sci. Ind. Reports 4,* 334 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

The intermediate layer of this glass consists of an organic film-forming agent in which is embedded a web either of the same material as the basic substance or of other material. If the basic substance and web material both have the same indexes of refraction, perfect transparency is insured. Where this is not an essential requirement, the web may consist of fine wire, cotton, silk, rayon, etc. TTD: 2-48

CHEMICAL RAW MATERIALS V

Amberlite. Amberlite W-1—new polymer. Anon. *India Rubber World 117,* 224 (Nov. 1947).

Amberlite W-1 is a new water-soluble polymer which is compatible with numerous water-soluble film formers. It may be used in the manufacture of adhesives, wet-strength paper, etc., and tests indicate potential application in printing, sizing, and coating. TTD: 2-48

Methacrylate polymers. Methacrylate polymers in Germany. Anon. *Modern Plastics 24,* No. 11, 129-30, 204, 206, 208, 210, 212, 214 (July, 1947).

This is a report on an investigation of German plastic plants by G. M. Kline, J. H. Rooney, J. W. C. Crawford, T. Love & F. G. Curtis. (See PB 949, *Bibl. Sci. Ind. Reports,* OTS, U. S. Dept. Commerce.)

TTD: 2-48

Polyvinyl ethers. German manufacture of polyvinyl ethers. G. M. Kline, Natl. Bur. of Standards. *Modern Plastics 24,* No. 5, 159-60, 188, 190, 192 (Jan. 1947).

The production of polyvinyl ethers in Germany is described and diagrammatic sketches of equipment, in one process used, are given. These resins are used as lacquer bases, adhesives, and impregnating agents for paper and textiles. TTD: 2-48

Resins. Textile treating resins. Anon. *Modern Plastics 24,* No. 5, 97 (Jan. 1947).

A brief discussion of the resins and processes used in shrinkproofing, creaseproofing, etc. TTD: 2-48

Turkey red oil. Sulfonation of vegetable oils. I. S. Uppal. *Indian Textile J. 57,* 1016-19 (Aug. 1947).

Experimental work on Turkey Red Oil production

from castor oil and H_2SO_4 is described. Results show, that by raising the temperature of the reaction and using lower quantities of acid than usual, the time of reaction and cost of production are reduced. In addition, a uniform product is obtained, regardless of weather changes.
TTD: 2-48

V-Lite. New thermoset resin. Anon. *Modern Plastics 24,* No. 12, 226, 228 (Aug. 1947).

V-Lite is diallyl phenyl phosphonate. It copolymerizes with other monomers such as methyl methacrylate, etc. The resulting copolymer has not been investigated completely, but the outstanding properties are high flame-resistance, high indices of refraction, hardness, and insolubility. It could be used in the production of transparent glass cloth laminates with approximately 95% transparency. TTD: 2-48

Vinyl resin. Vinyl paste resin. M. N. Burleson, B. F. Goodrich Co. *Modern Plastics 24,* No. 12, 108-11 (Aug. 1947).

Vinyl resin pastes consist of very small particles of vinyl chloride resin in water, plasticized by a concentrated emulsion. Applications for vinyl resin pastes are in spread and dip coating of textiles, film forming, and low pressure and cast molding. TTD: 2-48

Textile chemicals. Process for preparation of N-cyanoureas. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71490 IV/12o, Feb. 1942. PB 45495. *Bibl. Sci. Ind. Reports 4,* 338 (Jan. 24, 1947); 9 pp.; price $1.00 (Microfilm or Photostat).

A simple method for the preparation of N-cyanoureas is the reaction of aqueous solutions of cyanamide salts (if necessary, solutions which still contain water-soluble organic solvents) with isocyanates, isothiocyanates or solutions thereof, finely dispersed in organic solvents. The products of reaction or their salts may be used for the synthesis of plastics and textile aids.
TTD: 2-48

Textile chemicals. Process for preparation of urethan- or thiourethan carboxylamide compounds. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71531 IVc/12o, Feb. 1942. PB 45497. *Bibl. Sci. Ind. Reports 4,* 338 (Jan. 24, 1947); 8 pp.; price $1.00 (Microfilm or Photostat).

Valuable urethan- or thiourethanamide compounds are obtained by reacting mono- or polyvalent iso- or isothiocyanates with N-carboxylates or N-thiocarboxylates of aminocarboxylic acids, in the presence of accelerators, if necessary. The wax-like products can be used as substitutes for waxes in the textile, leather, and paper industries. Urethan compounds with 2 or more terminal

carbamic acid groups are good starting materials for the production of plastics, especially super-polyamides.
TTD: 2-48

Plastics and elastomers V 1

British plastics. Some recent developments of British plastics industry. P. A. Delafield, Abbey House. *India Rubber World 117,* 499-502 (Jan. 1948).

Improvements in plastic extrusions, polyvinyl chloride pastes, and other developments of the British plastics industry are discussed. TTD: 2-48

Elastomers. Polysiloxane elastomers. C. M. Doede & Ahmed Panagrossi, Connecticut Hard Rubber Co. *Ind. Eng. Chemistry 39,* 1372-5 (Nov. 1947).

Condensation and oxidation of methyl-siloxane will produce polysiloxane elastomers, silicone rubbers. Various mechanical and electrical properties and uses of these elastomers are reviewed. In the textile field, silicone rubbers are used as coatings for glass fabrics, insulating tape, etc. TTD: 2-48

Plastics. Decorating with phenolics and vinyls. Anon. *Modern Plastics 24,* No. 9, 125 (May, 1947).

A brief note on the uses of plastics in draperies, upholstery, etc. TTD: 2-48

Plastics. Plastics. G. M. Kline, Natl. Bur. of Standards. *Ind. Eng. Chemistry 39,* 1234-8 (Oct. 1947).

A review of recent developments in polytetrafluorethylene, polyethylene, styrene derivatives, and copolymers, vinyl ester resins, polyvinylidine chloride, polyvinyl alcohol, polyvinyl carbazole, furane resins, silicone resins, resorcinol-formaldehyde resins, unsaturated polyesters, and their properties and applications. TTD: 2-48

Plastics. Doubling, tripling, expanding—that's plastics. Hiram McCann, *Modern Plastics. Monsanto Mag. 26,* No. 4, 4-8 (Oct. 1947).

The development in uses for plastic materials is briefly reviewed, and future expansion is discussed.
TTD: 2-48

Plastics. World that plastics built. Chas. Sweeney, Monsanto Mag. *Monsanto Mag. 26,* No. 4, 9-15 (Oct. 1947).

Plastics applications in the modern home and in everyday life are reviewed. TTD: 2-48

Polyethylene resins. Polyethylene extrusion. G. G. Himmler, Bakelite Corp. *India Rubber World 117,* 228-9 (Nov. 1947).

Extrusion of polyethylene resins to form rods, tapes, films, etc., is discussed, with details of extrusion ma-

chines, temperatures, rates, and molding. Applications of these resins are briefly reviewed. TTD: 2-48

Synthetic elastomers. Elastomers. Harry L. Fisher, U. S. Industrial Chemicals, Inc. *Ind. Eng. Chemistry 39,* 1210-12 (Oct. 1947).

A survey of synthetic elastomers, with some details of their chemical composition, commercial names, properties and application. TTD: 2-48

Vibrin resins. Vibrin resins. E. Nelson, U. S. Rubber Co. *India Rubber World 117,* 88-90 (Oct. 1947).

Vibrin resins are low-pressure resins, composed of polyesters and cross-linking monomers. They may be used as impregnants, in laminations, castings, and moldings. The chemical properties and nature and types of Vibrin resins are reviewed, and dyeing of these resins is briefly discussed. TTD: 2-48

Wiper for doctor blade. Sterling W. Alderfer (to Andrews-Alderfer Processing Co., Inc.). USP 2 426 572, Aug. 26, 1947.

The doctor blade generally used for spreading coating materials on a fabric is provided with a wiper for the removal of dirt and lumps which accumulate behind the blade. The wiper consists of a thin sheet of material which is passed slowly over the edge of the blade in the direction opposite to the passage of the textile material. The process has been found especially useful in producing thin webs of rubber which can be slit into fine threads. TTD: 2-48

Insulation. Saml. E. Brillhart & Alvin N. Gray (to Western Electric Co., Inc.). USP 2 426 858, Sept. 2, 1947.

The electric conductor is surrounded by a fibrous material impregnated with a mixture of plasticized ester gums. The impregnated fibrous material is also coated with a mixture of the gums and a pigment. A type of ester gum which may be used is produced by the reaction of quicklime, glycerine and rosin oil. Blown soy bean oil is used to plasticize the mixture. The conductor, covered with the textile, may be passed through a molten bath of the gums and the excess wiped off. The oil prevents hardening and cracking of the insulation, and the gum holds the braid together better than materials previously used. The product is a satisfactory substitute for the asphalt and stearine saturants previously used, and is superior as an undercoating for colored lacquers. TTD: 2-48

Cellulose esters. Alvah D. Clark & Wm. F. Reichert (to Am. Viscose Corp.). USP 2 426 982, Sept. 9, 1947.

Cellulose is esterified by means of an excess of a lower aliphatic acid anhydride in a solvent for the ester containing a catalyst at 30°C or lower. The excess of the anhydride is then hydrated to acid and the cellulose ester is hydrolyzed to cellulose at temperatures of 30° or less. The temperature is prevented from rising too high by adding sufficient ice to convert the anhydride to acid and to reduce the concentration of acid in the solvent to about 95%. The addition of ice saves several hours in the time required for the process, and a more homogeneous product is obtained. TTD: 2-48

Rubberized cord. Jack Compton & Matthew W. Wilson (to B. F. Goodrich Co.). USP 2 429 397, Oct. 21, 1947.

In order to improve the adhesion of fibrous materials to rubber, in the manufacture of tires, belts, etc., the material is treated with an aqueous dispersion prepared by adding a nitrogenous base, such as ammonia, to a mixture of an aqueous solution of a partially condensed phenol-aldehyde resin and a synthetic latex obtained by the emulsion copolymerization of a butadiene-1, 3 hydrocarbon and a copolymerizable mono-olefinic compound such as stryrene, acrylonitrile and the like. The fibrous material is then dried and incorporated in a rubber or rubber-like material. The preferred phenolic compounds to be condensed with the aldehyde are polyhydric phenols such as resorcinol. TTD: 2-48

CHEMISTRY AND TECHNOLOGY OF PLASTICS. Raymond Nauth. Reinhold Publishing Corp., 330 W. 42nd St., New York 18, N. Y.; 530 pp.; price $9.50.

Reviewed in *India Rubber World 117,* 268 (Nov. 1947). TTD: 2-48

PRODUCTION AND PROPERTIES OF PLASTICS. S. Leon Kaye. International Textbook Co., Scranton 9, Pa.; 622 pp.; price $5.00.

Reviewed in *India Rubber World 117,* 541 (Jan. 1948). TTD: 2-48

Surface-active compounds V 2

Aminosilanes. Tert-alkoxyaminosilanes. C. S. Miner, Jr., L. A. Bryan, R. P. Holysz, Jr., & G. W. Pedlow, Jr., Miner Laboratories. *Ind. Eng. Chemistry 39,* 1368-71 (Nov. 1947).

Tert-alkoxyaminosilanes are prepared from silicon tetrachloride, tertiary alchohols, and ammonia. They are finding increased use as water-repellents due to their ability to render almost any surface hydrophobic. TTD: 2-48

CHEMICAL PROCESSING VI

Extracting and drying. Materials handling used in

extracting and drying. Anon. *Textile World 97,* No. 10, 143 (Oct. 1947).

A brief illustrated description of new machinery at Cabin Crafts, Inc. TTD: 2-48

Finishing. Rope squeezer has adjustable pressure. Anon. *Textile World 97,* No. 11, 158, 160 (Nov. 1947).

A rope squeezer (Weisner-Rapp Co.) having adjustable pneumatic pressure on the rubber rolls that can be preset to meet required pressures, is briefly described. TTD: 2-48

Finishing. Electronic straighteners use 2 different systems. D. Eldred, Gen. Electric Co. *Textile World 97,* No. 10, 123, 125, 127, 200, 202 (Oct. 1947).

Woven material, when finished, should have the filling and warp at right angles to each other. Tenter frames, multiple canting rolls, and split tilting rolls can be improved by transmitted-light devices which control the mechanical straightening operations.
LCL TTD: 2-48

Finishing. Recent progress in textile finishing. V. S. Kulkarni, Dhanamal Silk Mills. *Indian Textile J. 58,* 143-4 (Nov. 1947).

A brief review of polymer and cellulosic finishes. Various finishing processes (as Definized, Sanforset, etc.) are mentioned, and the manner in which finishes react with fibers is discussed. TTD: 2-48

Finishing. Modification of textile fiber properties through finishing operations. D. H. Powers, Monsanto Chemical Co. *ASTM Bull.* No. 149, 35-6 (Dec. 1947).

Washability, shrinkage, and resistance to rain, wrinkles, wear, and fire are properties of textiles briefly considered.
HAM TTD: 2-48

Finishing. Efficiency and flexibility offered by finishing ranges. C. Norris Rabold, Textile World. *Textile World 97,* No. 10, 106-11 (Oct. 1947).

Continuous ranges offer savings in time and labor and assure greater uniformity of product. Flow sheets are given for Becco, DuPont, and Mathieson bleaching, and DuPont and Williams dyeing.
LCL TTD: 2-48

Linen treatment. Linen. A. Richter. *Melliand Textilber. 28,* No. 4, 129-33 (Apr. 1947); *Chimie et Industrie 58,* 481 (Nov. 1947).

Increased resistance of linen to washing with alkaline substances is attained by hardening the hemicellulose

and pectin components by means of controlled formalization. In the case of unripened linen, preliminary treatment with ammonium oxalate is recommended. TTD: 2-48

Sizing machine. Marking motion of slasher sizing machine for short length. S. K. Gupta, Gaya Cotton and Jute Mills. *Indian Textile J. 57,* 1014-15 (Aug. 1947).

Calculations for the marking motion of a slasher sizing machine are given. TTD: 2-48

Chemical processing. Process for enhancing the value of natural or artificial fibers, and of silks or yarns and textiles from these materials. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71334 IVa/57b, Jan. 1942. PB 45486. *Bibl. Sci. Ind. Reports 4,* 337 (Jan. 24, 1947).

The materials are dipped into alpha-haloalkyl ethers of diols or into organic or aqueous solutions of reaction products of these ethers with tertiary amines (which are quaternary halogen salts). The materials are then dried and heated between 100 and 130°C. TTD: 2-48

COLOR VII

Dyeing VII 2

Dyeing. Dyeing by reserving. A. Bühler. *Acta Trop. Bale 3,* 242-71, 322-66 (1946); *Chimie et Industrie 58,* 482 (Nov. 1947).

This type of dyeing consists in polychrome decoration obtained by covering certain sections of the object to be decorated. Different applications of this method are described. TTD: 2-48

Dyeing and finishing. Observations on dyeing and finishing industry in Germany and Austria. C. Norris Rabold. QM Series Rept. 22. PB 50758 (June, 1946). *Bibl. Sci. Ind. Reports 4,* 283 (Jan. 24, 1947); 109 pp.; price $3.00 (Microfilm); $8.00 (Photostat).

This report covers a survey of the German dyeing industry including processes and machinery. The report summarizes the information on pigment dyeing; sulfur colors; direct, diazotized, and developed colors; acetate colors; naphthol dyeing; anthrasol dyeing; vat dyeing; and finishing. The report consists mainly of 16 appendices describing processes or the results of visits to chemical establishments. Included in the appendices are lists of dyes and textile auxiliaries, giving formulas or general composition. The information contained herein supplements other QM Textile Series Reports on the same subject. TTD: 2-48

Dyeing blends. Mohair-rayon blends offer unique dyeing problems. K. E. Marsden. *Textile World 97,* No. 11, 262, 264 (Nov. 1947).

Raising the nap, either before or after dyeing, as the occasion demands, is an essential operation in dyeing. Neutral-dyeing wool colors for the mohair and direct cotton dyes for the viscose rayon should be chosen. Immediate extraction after dyeing to prevent unevenness is suggested. TTD: 2-48

Dyeing card sliver. Developments in handling card sliver. Anon. *Textile Mfr. 73,* 423-4 (Sept. 1947).

The advantage of sliver dyeing over yarn dyeing is the uniform shades attained from the doubling and drawing processes that permit unicolor fabrics to be woven on single shuttle looms. Also pirns or warp cones from different dyeings may be mixed at any stage. The Fleissner card sliver drying machine is described and illustrated, and mechanical handling of the beams and packs before and after dyeing and drying is discussed. TTD: 2-48

Dyeing Indian cotton. Dyeing properties of Indian cottons. D. L. Sen & Nazir Ahmad, Indian Central Cotton Committee. *Indian Textile J. 58,* 34-48 (Oct. 1947).

The dyeing properties of 12 varieties of Indian cotton toward 5 substantive dyes of different molecular weights are reported. The methods of dyeing and estimating dye absorption are described. TTD: 2-48

Indian dyes. Indigenous Indian dyes. D. B. Kirtikar. *Indian Textile J. 58,* 137, 159-60 (Nov. 1947).

A review of natural dyes indigenous to India. TTD: 2-48

Package dyeing. Package dyeing in Germany. Dyeing of hosiery in Germany. Hot water heating of dye liquor. Thos. R. Smith. QM Series Textile Rept. 23. June, 1946. PB 50759. *Bibl. Sci. Ind. Reports 4,* 283 (Jan. 24, 1947); 43 pp.; price $1.00 (Microfilm); $3.00 (Photostat).

The report on package dyeing considers the following aspects: machinery, Kupensaure or vat acid procedure, water soluble vat dyes, and rayon cake dyeing, the last including recipes for "vat light green," "vat Bordeaux," "vat marine blue," "diazo black," and "naphthol red." The report on dyeing of hosiery is a summary by Dr. E. Koester of the I. G. Farbenindustrie at Leverkusen and includes considerations of the types of mechanical dyeing apparatus; it also lists the dyes for use in: (1) stockings made of natural silk with mercerized cotton; (2) hosiery of viscose rayon and mercerized cotton; and (3) stockings of nylon and Perlon. The third report

by T. R. Smith relates a visit to the plant of Schachenmayr, Mann & Cie, Salach Wertenburg, near Stuttgart; a diagram shows the hot water system used for heating dye liquor. The section by B. Parsons regards visits to Baumwollspinnerei Kolbermoor, Upper Bavaria, and the Gebruder Burkhardt, Pfulligen near Reutlingen, and includes illustrations from the descriptive literature furnished by the manufacturer of the machinery; B. Thies of Coesfeld, Westphalia. The last item is a translation of a paper prepared by Dr. E. Koester of I. G. Farbenindustrie, Leverkusen, which surveys the field of synthetic fiber dyeing, including a short summary of the development of these fibers. For drawings of the rayon cake dyeing machines of the I. G. and of a machine by Obermaier and Co., see PB 50759 S, the I. G. Farbenindustrie A-G, Rottweil Works being responsible for the I. G. drawings. TTD: 2-48

Rayon dyeing. Rayon cake dyeing machine. I. G. Farbenindustrie A-G. Supplement to QM Textile Series Rept. 23, 1939-1940. PB 50759, PB 50759 S. *Bibl. Sci. Ind. Reports 4,* 283 (Jan. 24, 1947); 98 pp.; price $2.00 (Microfilm); $7.00 (Photostat).

Eighteen of these drawings show all details of the I. G. rayon cake dyeing machine. Also included is a drawing of a new machine developed by Obermaier and Co. This machine, circular in shape with an open top, has a capacity of 102 cakes with 6 cakes per spindle, uses a pump of 125 mm diameter and 20 hp motor. For description of rayon cake dyeing, see QM Textile Series Report No. 23, PB 50759, by Thos. R. Smith. TTD: 2-48

Vat dyeing. Abbott-Cox process. Anon. *Textile Recorder 64,* No. 758, 52, 59 (May, 1946).

A review of the Abbott-Cox process of vat dyeing rayon cakes, cotton packages, rayon fabrics, etc. TTD: 2-48

Vat dyeing. Cyril M. Croft & Walter H. Hindle (to Celanese Corp. of Am.). USP 2 428 833, Oct. 14, 1947.

Mixed fabrics containing an organic derivative of cellulose, such as cellulose acetate, and regenerated cellulose yarns and fibers are uniformly dyed by impregnating the mixed fabrics with an aqueous ethyl alcohol solution of a leuco vat dye sulfuric acid ester, containing 50-80 wt.% of alcohol and 50-20 wt.% of water. The impregnated fabric is dried by means of air heated to 200°F and is then immersed in 0.75% H_2SO_4 to oxidize the leuco vat dye and develop the color. TTD: 2-48

Direct dyeing. Cyril M. Croft & Walter H. Hindle (to Celanese Corp. of Am.). USP 2 428 834, Oct. 14, 1947.

Cellulose acetate and other organic derivatives of cellu-

lose textiles are dyed by mechanical impregnation of the fabric with an aqueous alcohol solution of a direct dyeing dye, containing at least 60 wt. % of a lower aliphatic (preferably ethyl) alcohol, and 1-8 wt.% of a lower aliphatic acid such as acetic or propionic acid.

TTD: 2-48

Dyeing cellulose acetate. Cyril M. Croft & Walter H. Hindle (to Celanese Corp. of Am.). USP 2 428 835, Oct. 14, 1947.

Cellulose acetate and other organic derivatives of cellulose materials are dyed by mechanical impregnation of the fabric with an aqueous alcohol solution of a suitable dye, containing at least 60 wt.% of a lower aliphatic (preferably ethyl) alcohol, and 1-3 wt.% of a salt of thiocyanic acid, preferably sodium thiocyanate, as a swelling agent for the cellulosic material. The impregnated material is washed immediately and then dried. In the case of a direct dye, 1-8 wt.% of a lower aliphatic acid is added to the dyeing solution. TTD: 2-48

Hank dyeing machine. G. S. Halliwell & R. T. Freeman (to Mellor Bromley & Co., Ltd.). Brit. P. 584 689. *Textile Mfr. 73,* 437 (Sept. 1947).

A machine for dyeing hanks of yarn, hosiery, etc., comprises a partitioned tank with an open-ended circular casing to receive the blades of a propeller. The propeller, driven by an electric motor provides for circulation of the liquor in the tank between a larger and a smaller compartment. TTD: 2-48

Dyeing. Brit. Celanese, Ltd. Brit. P. 584 758. *Textile Mfr. 73,* 438 (Sept. 1947).

Nylon or nylon-type materials are dyed by mechanical impregnation with a solution of a dye containing a lower aliphatic alcohol (55-65 wt.%), water, and a swelling agent for the polyamide. TTD: 2-48

Dyeing. Process for dyeing and subsequently treating with copper substantive dyes on polyamides, their copolymers and polyurethans. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71079 IVd/8m, Dec. 1941. PB 45472. *Bibl. Sci. Ind. Reports 4,* 335 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

Ammonium salts of lower-aliphatic acids, especially $HCOONH_4$, are added to the dye bath, and the dyeing is performed at 80-95°C. The subsequent treatment with copper is carried out in the presence of substituted naphthalenesulfonic acids, aromatic sulfonic acids or sulfonic acid esters of oleic acid derivatives.

TTD: 2-48

Resist effects. Resists on polyamide or polyurethan fibers or threads in dyeing them together with other

textile fibers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71517 IVd/8m, Feb. 1942. PB 45496. *Bibl. Sci. Ind. Reports 4,* 338 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

The desired resist effects are achieved if a tannin, soda, or caustic alkali bath and/or a sulfonic acid of aralkylated phenols or phenol derivatives are used to dye with substantive dyes a mixture of polyamides or polyurethans with other textile fibers. The first page may not produce well. TTD: 2-48

Dyeing. Arrangement of dyeing and aftertreatment apparatus. I. G. Farbenindustrie A-G. Ger. P. Appl. I 71830 VII/8a, Mar. 1942. PB 45534. *Bibl. Sci. Ind. Reports 4,* 341 (Jan. 24, 1947); 5 pp.; price $1.00 (Microfilm or Photostat).

This invention makes possible the dyeing and aftertreatment of any size of bobbin whereby the liquids are pressed through the bobbins from the inside outward. The arrangement is explained by means of 2 drawings. For related prior application I 68334 VII/8, see PB 34677. TTD: 2-48

Brightening dyes. Process for brightening the colors produced with dyes used for cellulose acetate upon objects produced from superpolyamides, their copolymers, superpolyurethans or cellulose acetate. I. G. Farbenindustrie. Ger. P. Appl. I 72347 IVd/8m, May 1942. PB 45571. *Bibl. Sci. Ind. Reports 4,* 345 (Jan. 24, 1947).

The forms are treated in a hot bath with ethers obtained by the reaction of ethylene oxide with mono- or polyhydric alcohols or phenols. For better results, brightening agents may be used which, in addition to the ethers, contain fattty (preferably stearic) acid compounds. The advantages of the method lie in the sparing of the fiber, in the gradual brightening of the color without color disintegration and in the absence of a major change in tone. TTD: 2-48

Printing VII 3

Screen printing. Economy and production in screen printing. Anon. *Textile Mfr. 73,* 420-2 (Sept. 1947).

A continuous system of screen printing is reviewed, with details of a new drying carriage. Stationary tables are used with movable apparatus. TTD: 2-48

Printing with acid dyes. Cyril M. Croft & Walter H. Hindle (to Celanese Corp. of Am.). USP 2 428 836, Oct. 14, 1947.

Cellulose acetate and other organic derivatives of cellulose materials are directly printed in colored patterns by application of a printing paste comprising an acid

dye, 30-60 wt.% of a lower aliphatic alcohol, 2-4 wt.% of a lower aliphatic acid, 6-10 wt.% of an inorganic salt of thiocyanic acid as swelling agent and 1.5-5 wt.% of a water-soluble thickener, such as gum tragacanth. The material is then washed and dried. TTD: 2-48

Measurement and defects VII 4

Color matching. Notes on color matching in dyeing. Anon. *Textile Mfr. 73,* 379-81 (Aug. 1947).

Factors in matching colors in dyeing and printing are discussed and some of the problems encountered reviewed. TTD: 2-48

Color matching. Standard daylight lamp suggested for color matching. Anon. *Textile World 97,* No. 10, 234 (Oct. 1947).

In a brief note it is suggested, on the basis of tests made on the quality and quantity of daylight and artificial light for color matching, that a temperature of 7500°K and 75-300 ft.-candles be used. TTD: 2-48

Dichroism. Dichroism. II. J. W. Illingworth. *Textile Recorder 64,* No. 758, 54, 56 (May, 1946).

A study of the dichroic properties of dyed fibers reveals that the dichroic constant gives a relative measure of the components of the oriented dye molecules and can be used to estimate the molecular orientation of fibers. Orientation measurements of fibers are discussed. (For Part I see TTD: *3,* 510 (Nov. 1946).) TTD: 2-48

PROOFING VIII

Fireproofing. Reduction of fire risks in ships. L. A. Jordan. *Nature 160,* 216-17 (Aug. 16, 1947).

In a discussion of the report of the Admiralty Chemical Dept. on reducing fire hazards on ships, the fireproofing of textile fabrics, used on a ship, is reviewed. It is noted that the best results were achieved by antimony oxide impregnation with a chlorinated organic compound. TTD: 2-48

Fireproofing. Flameproofing of cotton fillers in plastic laminates. Simon Williams, John B. Alfers & Carl M. Furgason. *Modern Plastics 24,* No. 7, 151-3, 190 (Mar. 1947).

A study of the practicability of using flameproofing compounds with cotton fillers in plastic laminates is discussed with details of the test method used. Results show that the flameproofing properties are improved by this treatment, but there is a degradation in mechanical and wet electrical properties. TTD: 2-48

Proofing fabrics. Single vinyl-coating compound. Anon. *Modern Plastics 24,* No. 5, 176 (Jan. 1947).

A single vinyl compound, which will effectively waterproof and flameproof fabrics, and the principle of its application, are briefly described. TTD: 2-48

Proofing fabrics. Resin treatment of fabric for shrink prevention, permanent starching. Geo. R. Vila, U. S. Rubber Co. *Modern Plastics 24,* No. 8, 118-20 (Apr. 1947).

Shrinkproofing wool fabrics with a new resin, Koloc, and tests of the treatment are described. A discussion of the use of the resin, Kandar, to impart permanent crispness to fabrics as cotton, rayon, wool, etc., is given. TTD: 2-48

Wool chlorination. Wool made shrink-resistant by improved chlorination. Leonard Shapiro, Alrose Chemical Co. *Textile World 97,* No. 11, 151, 153, 210, 212, 214, 216 (Nov. 1947).

Acid and alkaline processes are described. Sodium sulfamate in the acid process increases stability and retards chlorine release.
LCL TTD: 2-48

Waterproofing. John M. Grim (to Am. Cyanamid Co.). USP 2 426 770, Sept. 2, 1947.

Textile fabrics are treated with dispersions of alkylated methylol melamine and a higher aliphatic alcohol and these resin-forming constituents are then cured and dried on the fabric. Spray tests are described which show that the fabrics treated by this process are waterproof and that the finish is resistant to washing and dry-cleaning. The cloth showed very little shrinkage from washing. TTD: 2-48

Flameproofing cellulosic material. Louis W. Georges & Carl Hamalainen (to U. S. Sec'y of Agriculture). USP 2 428 843, Oct. 14, 1947.

Cellulose fibrous materials, particularly cotton, are rendered flame-resistant by reacting the material, under anhydrous conditions, with a hot solution of a halogen-substituted aryl isocyanate, preferably 2,4,6-trichlorophenyl isocyanate, in a tertiary organic base, such as pyridine, to form a carbamic ester type of derivative of the cellulose. This chemical combination of the fire-retardant with the cellulose molecule prevents removal of the fireproofing effect by washing. TTD: 2-48

Shrinkproofing wool. Francis M. Stevenson & John L. Raynes (to Stevensons (Dyers), Ltd.). USP 2 429 082, Oct. 14, 1947.

Textile fabrics consisting at least partly of wool are rendered shrink-resistant by treatment with a dilute aque-

ous solution of an alkali metal permanganate at a pH of 5-10 and at a temperature not exceeding 60°C, followed by treatment with an aqueous solution of a hypohalite of a pH of 7.5-11 or an aqueous solution of a nitrogen-chloro compound, in which the Cl is directly attached to the N and is present as available Cl, having a pH of 1-3. Metallic salts such as $CaCl_2$ or $ZnSO_4$ may be added to the oxidizing bath to aid the reaction. TTD: 2-48

Waterproofing. Process for enhancing water-resistance of papers, textiles, etc., as emulsion carriers for photographic or photomechanical purposes. I. G. Farbenindustrie A-G. Ger. P. Appl. I 72874 IVa/57b, Aug. 1942. PB 45605. *Bibl. Sci. Ind. Reports 4,* 347 (Jan. 24, 1947); 3 pp.; price $1.00 (Microfilm or Photostat).

Use is claimed of aqueous dispersions of various plastics, such as polyvinyl acetate, polyacrylic acid esters, and their copolymers. The adhesion of the sensitized emulsion to the coated support is increased by coating with a bonding layer consisting of colloidal solutions of SiO_2, $Al(OH)_3$, TiO_2, or diatomaceous earth. TTD: 2-48

Waterproofing. Process for lending a water-repellent character to artificial threads and fibers. I. G. Farbenindustrie A-G. Ger. P. Appl. I 73202 IVc/29b, Sept. 1942. PB 45622. *Bibl. Sci. Ind. Reports 4,* 349 (Jan. 24, 1947); 7 pp.; price $1.00 (Microfilm or Photostat).

For a water-repellent quality which resists even intensive mechanical treatment, materials are impregnated with specified hydrophobic substances, whereupon they are freed from excess chemicals by wringing or centrifuging, dried, and reheated. It is very useful to impregnate the materials when they are still wet from the manufacturing process. The acidity of the treating solution may be intensified by addition of acid or diminished by addition of buffer agents. Presence of formaldehyde in the treating bath increases the water-repellent effect. TTD: 2-48

REPORT ON FUNGUS-PROOFING OF TEXTILES AND CORDAGE FOR USE IN TROPICAL SERVICE. Leland Shanor & Subcommittee on Textiles and Cordage. OSRD Report 4513; 1945; 56 pp. TTD: 2-48

TESTING AND ANALYSIS IX

Cloth specifications. Textile architecture. C. S. Jones. *Indian Textile J. 57,* 1008-9 (Aug. 1947).

Textile cloth specifications have been concerned with choice of materials already available. With increasing scientific knowledge of fibers and their properties, the

method of specification is becoming a matter of design of the best fabric for the purpose. TTD: 2-48

Physical properties IX 1

Fabric permeability. Permeability of fabrics to air and water vapor. F. A. Westbrook. *Textile Mfr. 73,* 451-53 (Oct. 1947).

Test methods and results of studies on fabric permeability to air and water vapor at low velocities at the Institute of Textile Technology are discussed. The standard Frazier machine and a specially designed apparatus were used. TTD: 2-48

Fiber testing. Fiber testing aids cotton classer. Seth Carter. *Textile World 97,* No. 11, 110-11, 216, 218 (Nov. 1947).

Data from fiber testing have proven of value in classing cotton. Increased experience makes these data of more extensive use in buying cotton. This is a review of USDA Bull. on "Cotton Mill Requirements as Related to Improved Cotton Quality and Marketing Practices" (TTD: *4,* 245).
LCL TTD: 2-48

Optical methods. Use of optical methods in textile industry. J. M. Preston. *Textile Mfr. 73,* 372-4 (Aug. 1947).

A discussion of optical methods for fabric inspection. The use of white light for color, structure, and luster detection is described. Special illumination such as ultraviolet, infrared, and polarized light is necessary for detection of fluorescent substances, etc. X-ray and colorimetry for fabric inspection are briefly reviewed. TTD: 2-48

Seam strength. Seam engineering. Anon. *Inst. News 15,* No. 1, 10, 14 (Jan. 1948).

An investigation of seam structure of machine-sewed knitted fabrics is being conducted to attain maximum seam breaking strength, to improve the "sew-ability" of a fabric, and to improve the resistance of a seam to abrasion. TTD: 2-48

Soil burial tests. Resistance of resin-impregnated cotton fabrics to microorganisms. W. Lawrence White & R. G. H. Siu, U. S. Army QMC. *Ind. Eng. Chemistry 39,* 1628-30 (Dec. 1947).

Experiments in which cotton cloths are impregnated with urea-formaldehyde and melamine-formaldehyde resins, subjected to pure culture tests, and then to soil burial tests are described. Decrease in tensile strength

was taken as an index of the degree of microbiological degradation; and cloths, impregnated with Aerotex M-3, were found to have the greatest resistance to degradation. TTD: 2-48

Solar exposure cabinet. Automatic, normal-incidence solar exposure cabinet. P. J. Fynn & K. S. Campbell, Southern Regional Research Laboratory. *Textile Research J. 17,* 158-66 (Mar. 1947).

The exposure chamber was made weatherproof and airtight, and was provided with 6 windows, each made from a different glass color filter. It is rotated to follow the sun. Filtered air is drawn through the chamber, and the fabric samples are mounted on metallic surfaces maintained at constant temperature. TTD: 2-48

Testing adsorption of fibers. Sorption of nitrogen and water vapor on textile fibers. John W. Rowen & R. L. Blaine, Nat'l. Bur. of Standards. *Ind. Eng. Chemistry 39,* 1659-63 (Dec. 1947).

Methods of measuring the adsorption of nitrogen and water vapor on 6 fibers (cotton, wool, viscose, silk, nylon, and cellulose acetate) are described. Results show that all the fibers show a relatively low capacity for absorption of N as compared with the absorption of water vapor. TTD: 2-48

Testing parachute fabric. Some physical characteristics of parachute silk fabrics. Srinagabhushana. *Indian Textile J. 57,* 997-1001 (Aug. 1947).

Methods of determining weight per square yard, resistance to air flow, yarn crimp, strength, etc., in silk parachute cloth are reviewed. The results obtained are given and discussed in some detail. TTD: 2-48

Wrinkle tester. New "Wrinkle." Anon. *Monsanto Mag. 26,* No. 5, 33 (Dec. 1947).

The Monsanto wrinkle recovery tester or Resloom meter permits a reading of angles of recovery of 0-180°. One end of the creased fabric is clamped and the other is stretched straight vertically for a few minutes. The extent to which the free end bounces back is then measured. TTD: 2-48

Textile testing machine. A. Lendon (to S. Denison & Son, Ltd.). Brit. P. 584 653. *Textile Mfr. 73,* 436 (Sept. 1947).

On a tensile testing machine having self-aligning mechanism for the specimen each holder is interconnected to the lever straining or stress indicator mechanism through a coupling consisting of a pair of knife edges and bearings arranged at right angles to each other. TTD: 2-48

Chemical analysis IX 2

Lake-forming metals. New analytical reactions with anionic and cationic wetting agents. A. Steigmann. *J. Soc. Chem. Industry 66,* 355-6 (Oct. 1947).

Anionic and cationic wetting agents will absorb acid dyes and acid spot test reagents and are useful as "trace catchers" for lake-forming metals. The fabric is first bathed in a solution of the wetting agent and then in a solution of calgon or waterglass to precipitate the mordant on the fiber. TTD: 2-48

Phenolic resins. Determination of methylol groups and dibenzyl ether linkages in phenol alcohols and derived phenolic resins. I. Methylol groups. H. S. Lilley & D. W. J. Osmond. *J. Soc. Chem. Industry 66,* 340-1 (Oct. 1947).

Determination of methylol groups in phenol alcohols and resins derived therefrom, by the method of oxidation and elimination of the methylol group as formic acid by iodine, is described. TTD: 2-48

Testing cotton mixtures. Method for distinguishing and estimating Mollisoni and P. A. 4F cottons in mixture. A. N. Gulati, Technological Laboratory (Matunga). *Indian Cotton Growing Rev. 1,* 195-8 (Oct. 1947).

The procedure for applying Victoria blue stain to a mixture of Mollisoni and P. A. 4F cottons is described. Microscopic examination of the stained mixture gives good results in distinguishing and estimating the percentage of Mollisoni and P. A. 4F cottons. TTD: 2-48

IDENTIFICATION OF DYES ON TEXTILE FIBERS AND DETECTION OF METALS IN FIBROUS MATERIALS, DYES AND ORGANIC PIGMENTS. Ellis Clayton. Society of Dyers and Colorists, Ocean Chambers, 32/34, Piccadilly, Bradford, England.

Reviewed in *Indian Textile J. 58,* 195 (Nov. 1947). TTD: 2-48

TEXTILE MILLS X

Hosiery mill. Belvedere—house built for full-fashioned equipment. C. Mallard Bowden, Textile World. *Textile World 97,* No. 11, 116-18 (Nov. 1947).

A brief illustrated description of the one-story plant of Belvedere Hosiery Co. TTD: 2-48

Hosiery mill. New hosiery mill features sealed construction. Wm. A. Newell, Textile World. *Textile World 97,* No. 10, 112-14 (Oct. 1947).

A new plant (Dublin Hosiery Mills, Inc.) is briefly described. Some of the construction features are reinforced floors, levelled to within $\frac{1}{8}$", radiant heating coils in floor and walls, humidity control and air conditioning, and location of the full fashioned hosiery machines (each measuring 54′ 9″) in the center of the building, thus leaving the side aisles for finishing operations, such as inspecting, seaming, and looping. TTD: 2-48

Mill modernization. Survey reveals plans. Anon. *Textile World 97,* No. 11, 104-9, 220, 224, 226 (Nov. 1947).

Some features of the construction and renovation of a number of mills are described and illustrated. TTD: 2-48

Buildings, machinery, power X 1

Aluminum alloy. "Aluminex" glazing bar. Anon. *Textile Mfr. 73,* 471 (Oct. 1947).

Some notes on a high-grade aluminum alloy glazing bar, "Aluminex." This alloy has been used in mill construction work and has the advantage of being more corrosion-resistant than other forms of coating. TTD: 2-48

Compressed air. Compressed-air systems need close attention. Anon. *Textile World 97,* No. 10, 116-17, 204, 206, 208 (Oct. 1947).

Compressed air is a valuable industrial tool. Its economical use depends upon proper selection, installation, and maintenance of equipment. Factors involved in its use are discussed in detail.
LCL TTD: 2-48

Heat economy. Mill conserves heat output of diesel generator. H. A. Berolzheimer, Diamond Braiding Mills, Inc. *Industry & Power 54,* No. 2, 83-4 (Feb. 1948).

The heat recovery system of the Diamond Braiding Mills is described and illustrated. The heat output and cooling water of the diesel generator are used to dry the dyed yarns before weaving and in air heating. TTD: 2-48

Indian cotton mill. First cotton mill in Pakistan. Anon. *Indian Textile J. 58,* 117-22 (Nov. 1947).

A description of the first cotton mill in Pakistan, including some particulars of mill construction, machinery, and air-conditioning. TTD: 2-48

Machinery. Horn of plenty is mechanized. F. A. Abbiati. *Monsanto Mag. 26,* No. 4, 26-30 (Oct. 1947).

A brief survey of the machinery used in the production of plastics, coated fabrics, and laminates. TTD: 2-48

Machinery. Plastics improve textile machinery. Anon. *Modern Plastics 24,* No. 11, 73-9 (July, 1947).

Plastics are used in textile machinery in the form of bobbins, twisters, continuous spinning machinery for rayon, dyeing machinery, etc. These and future developments are discussed. TTD: 2-48

Machinery. Textile machinery at Prague Autumn Fair. Anon. *Textile Mfr. 73,* 461-3 (Oct. 1947).

A summary of the machinery exhibited. TTD: 2-48

Machinery modernization. Modernization in Lancashire spinning industry. Anon. *Indian Textile J. 58,* 161-6 (Nov. 1947).

The texts of "Comparative Effects of Different Forms of Reequipment" by the British Cotton Industry Research Assn. and "New Machinery and Conversions" by the Textile Machinery Makers Ltd. are given to aid in machinery modernization. TTD: 2-48

Mercury cell. New stationary mercury cell. Anon. *Textile Mfr. 73,* 396 (Sept. 1947).

A brief description of a new stationary mercury cell which produces caustic soda of high purity for the manufacture of rayon. TTD: 2-48

Metal alloys. Textile applications of light alloys. A. G. Arend. *Textile Mfr. 73,* 464 (Oct. 1947).

Light metal alloys are finding an increasing number of applications in textile machines and accessories. The impact extrusion system of production for light alloy textile accessories, etc., gives rapid production and reduces the cost of these parts. TTD: 2-48

Sound conditioning. Noise abatement in textile mills. F. A. Westbrook. *Textile Mfr. 73,* 412-13 (Sept. 1947).

Excessive noise may result in undue fatigue, impaired hearing, etc. A weaving room in which much of the noise is absorbed has felt mountings for looms to absorb vibrations, and C-3 Acousti-Celotex tile for the ceilings. TTD: 2-48

Steam traps. Developments in ball float steam traps. Anon. *Textile Mfr. 73,* 416 (Sept. 1947).

A brief illustrated description of a new pattern of the ball float type steam traps (Spirax). TTD: 2-48

Lighting and air X 2

Air conditioning. Air conditioning in textile mills. E. Howlett. *Textile Mfr. 73,* 363-5, 405-7 (Aug., Sept. 1947).

The Musgrave and the Ozonair systems of air conditioning are described and illustrated. These systems take

care of temperature, dust control, ventilation, air purification, etc. TTD: 2-48

Air conditioning controls. New techniques in pneumatic controls for textile mill air conditioning. Albert H. Koch. *Instrumentation 3,* No. 2, 3-7 (First Quarter, 1948).

Suitable controls for air conditioning systems must combine accuracy, ease of installation, and minimum maintenance. Dew paint temperature control and positive positioning of air dampers for air washers are discussed, and the Honeywell aspirator box is described.
TTD: 2-48

REFRIGERATION AND AIR-CONDITIONING DIRECTORY, 1946. Anon. Business News Publishing Co., 450 W. Fort St., Detroit 26, Michigan.

Reviewed in *Indian Textile J. 58,* 71 (Oct. 1947).
TTD: 2-48

Wastes X 3

Waste removal. Waste thread removal on woolen cards. Anon. *Platt's Bull. 5,* 174-6 (July-Aug. 1947).

Various methods of waste removal on carding machines are briefly discussed. Platt's new system for woolen cards is a pneumatic individual unit, built as an integral part of the condensers. Advantages of this appliance are reviewed. TTD: 2-48

Treating wool scour waters. Jos. L. Campanella (to Fields Point Mfg. Corp.). USP 2 429 868, Oct. 28, 1947.

Wool scour waters containing albuminous matter, soap, and alkali are treated with a sufficient quantity of calcium hypochlorite to precipitate a curd of the foreign matter, from which the water and grease are removed centrifugally. TTD: 2-48

Hazards; operations; efficiency X 4

Materials handling. Mill builds course to train fork lift truck operators. Thos. R. Hadfield & J. Lansing English, Wm. Whitman Co., Inc. *Textile World 97,* No. 11, 112-13 (Nov. 1947).

An obstacle course (at Arlington Mills Division) to train fork lift truck operators has improved skills and been of value generally.
LCL TTD: 2-48

Materials handling. No apologies for materials handling. Sidney Reibel, Albert Kahn, Inc. *Mfrs'. Record 117,* No. 2, 38-9, 60 (Feb. 1948).

In rebuttal to a previous article by Johannsen (TTD:

4, 464) it is emphasized that materials handling *does* add value to the product.
LCL TTD: 2-48

Materials handling. Materials handling offers opportunities to save. P. M. Thomas, Textile World. *Textile World 97,* No. 11, 120-1, 123, 125, 234, 236 (Nov. 1947).

Examples of material handling situations discussed include yarn handling and storing, empty bobbin handling, preparation and storage of brine, and cold storage.
LCL TTD: 2-48

Materials handling. Planning preparatory department of 700-loom mill. M. M. Tiwari. *Indian Textile J. 57,* 1012-13 (Aug. 1947).

Illustrated plans for the preparatory department (winding, warping, and sizing) of an Indian mill are described in relation to the handling of materials. TTD: 2-48

Materials handling. Handling system need not be expensive. E. Dalton White. *Textile World 97,* No. 10, 120-1 (Oct. 1947).

Shop-designed and shop-made equipment, at a cost of $6200, has improved materials handling at Richmond Hosiery Mills.
LCL TTD: 2-48

Neoprene suit. Protective suit. Anon. *India Rubber World 117,* 122 (Oct. 1947).

A brief note on a double coated neoprene suit, fully vulcanized at all seams, which is designed for protection against splashes and spray of heavy acids, caustics, and oils. TTD: 2-48

Weaving production. P. M. H. in weaving sheds. Ian Laird. *Textile Mfr. 73,* 349-50, 352, 368, 414-16 (Aug., Sept. 1947).

Belt breakages, oiling, cloth inspection, and other factors that influence loom efficiency and output and cloth quality are discussed. Problems of weft waste, shuttle tongues, pirn sizes, etc., are also considered.
TTD: 2-48

BASIC SCIENCES XI

Air permeability. Air permeability of fabrics. II. L. W. Rainard, Inst. of Textile Technology. *Textile Research J. 17,* 167-70 (Mar. 1947).

The Hagenbach equation is applied to the study of air flow through fabrics. TTD: 2-48

Cellulose hydrolysis. Enzymatic hydrolysis of cellulose by *Coniophora cerebella.* F. F. Ford & J. C. Vitucci, Fordham Univ. *Nature 160,* 261 (Aug. 23, 1947).

Enzymatic hydrolysis of cellulose in the forms of filter paper and surgical cotton by *Coniophora cerebella* has been found to degrade both forms to oxalic acid.
TTD: 2-48

Cellulose structure. Cellulose intercrystalline structure. R. F. Nickerson & J. A. Habrle, Mellon Inst. *Ind. Eng. Chemistry 39,* 1507-12 (Nov. 1947).

A study of cellulose structure by the hydrolysis of cotton linters suggests that cellulose molecule sections which interlink the crystallites in the chain direction are attacked first. With further hydrolysis, the lateral crystallite surfaces are attacked. From viscosity data, crystallite lengths can be estimated. TTD: 2-48

Curl in woven fabrics. Curl in woven textile fabrics: its cause and control. Ross Whitman, Raymond Laboratories. *Textile Research J. 17,* 148-57 (Mar. 1947).

Curl is caused by the additive torque effects of warp and filling sets of yarns. A formula is given for balancing this torque. TTD: 2-48

Functional fabric design. Geometrical principles applicable to design of functional fabrics. F. T. Peirce, N. C. State College. *Textile Research J. 17,* 123-47 (Mar. 1947).

This is a theoretical and mathematical discussion of yarn irregularities, crimp, swollen construction, cover factors and weave factor, matts and twills, tensile compression, and the geometry of knitting. TTD: 2-48

Keratin. Chemical constitution of keratin. H. Lindley, Wool Industries Research Assn. *Nature 160,* 190-1 (Aug. 9, 1947).

Wool keratin has been separated into several components and their amino acid content compared with the original wool. Separation was effected by treatment with cetyl sulfonic acid followed by immersion at about pH 11 at room temperature overnight. Component *A* consisted of resistant portions of scales and cortical cells. Acidification of the alkaline liquor to pH of 4-5 precipitated the component *B*. The question is then raised and discussed as to whether the difference in composition of *A* and *B* wool consists of more than one kind of keratin. TTD: 2-48

Polar vapors. Effect of polar vapors on direct-current conductance of keratin and nylon. G. King & J. A. Medley, Wool Industries Research Assn. *Nature 160,* 438 (Sept. 27, 1947).

Measurements of direct current conductivity of nylon-water, nylon-formic acid, and wool-water systems indicate curves similar to those found for the corresponding elastic modulus relation. Fuoss' suggestion that the

conductivity in such systems is ionic would account for the results obtained. An alternative theory by Baxter is also discussed. TTD: 2-48

Swelling of cellulose. Solvation and swelling of cellulose polymers. P. Clement. *Ann. Chim.* (Series 12), *2,* 420-88 (July, Aug. 1947).

Mechanical studies on cellulose, cellulose acetate and cellulose nitrate, show that intrareticular swelling, gelatinization, and solubilization are independent of the degree of dispersion and are conditioned by the polarity and state of association of the chained polymers. The infrared spectrograph gave evidence of the connection formed between the polymer and dispersing agent in the case of dipolar linkages, such as the hydrogen linkage formed with the carbonyl groups of cellulose acetate. These spectral studies also gave evidence that the structure of the ester group of cellulose nitrate is analogous to that of alkyl nitrates. Alkyl chlorides and H_3PO_4 and its derivatives were used as dispersing agents. Ninety-six references. TTD: 2-48

TEXTILE RESEARCH XII

Advances in plastics. Advances in plastics during 1946. Anon. *Modern Plastics 24,* No. 5, 153-8, 192, 194, 196, 198, 200 (Jan. 1947).

A review of progress in plastics in 1946, including 411 references. TTD: 2-48

Indian industry. Major textile industries in Hyderabad. Anon. *Indian Textile J. 57,* 1074-6 (Sept. 1947).

Plans for future development of Indian industries are discussed. TTD: 2-48

Military textile requirements. Textiles in peace and war. S. J. Kennedy, Office of QMG. *ASTM Bull.* No. 149, 33-5 (Dec. 1947).

The large demands of the army quartermaster for textile goods of all kinds and the general requirements of such goods are outlined in a discussion of the production of textiles for consumer use.
HAM TTD: 2-48

Plastics developments. Plastics engineering in 1946. *Modern Plastics 24,* No. 5, 137-46 (Jan. 1947).

In a survey of developments in the plastics industry in 1946, a yarn-impregnating process and improvements in aircraft laminates, utilizing textiles, are briefly reviewed. TTD: 2-48

Research. A common field of graduate research in engineering. O. A. Hougen, Univ. of Wisconsin. *J. Eng. Education 38,* 267-70 (Dec. 1947).

Graduate research is properly concerned with process

design: rates of mass and heat transfer, and chemical change. Fundamental knowledge of the effects of variables on these rates is essential in scaling up any process.
LCL TTD: 2-48

Research. TRIangle of research. Wm. A. Newell, Textile World. *Textile World 97,* No. 10, 101-5, 192, 194, 196 (Oct. 1947).

A formal linking of the Textile Foundation, Textile Research Institute and Princeton University has evolved over several years. The present program includes research for members, thesis work for 15 research fellows, and publication of *Textile Research Journal.*
LCL TTD: 2-48

Seasonal clothing. Clothes that breathe. W. Schweisheimer. *Indian Textile J. 58,* 141-2 (Nov. 1947).

Clothing worn by men and women in warm and cold weather is briefly discussed. Experiments investigating clothing for warm and humid atmospheres are described. Results show that clothing is a hindrance to body heat loss and should therefore be of light weight and loose-fitting. TTD: 2-48

Textile developments. Textile Cinderellas. Anon. *Ind. Eng. Chemistry 39,* No. 12, 12A, 14A (Dec. 1947).

Brief notes on advances in the textile field in dyeing glass fibers, photoprinting, new fibers, etc., are given. TTD: 2-48

Textile developments. Textile notes from Lancashire. C. S. Jones. *Indian Textile J. 58,* 138-40 (Nov. 1947).

A discussion of non-woven plastic fabrics, the production of silk veiling material, and the development of a new fiber, Piumital, produced from feathers. TTD: 2-48

Textile industries. Textile industries of U. S. A., Great Britain and Switzerland. N. V. Ullal & R. D. Pant. *Indian Textile J. 58,* 151-8 (Nov. 1947).

Textile machinery and industries of U. S., Great Britain and Switzerland are briefly discussed. TTD: 2-48

Textile industry. Textiles and textile industry in America. Anon. *Indian Textile J. 57,* 1083-5 (Sept. 1947).

Economic conditions and progress due to textile research are discussed. TTD: 2-48

EDUCATION AND TRAINING FOR COTTON AND RAYON INDUSTRY. Recruitment and Training Dept. of Cotton Board, 81 Fountain St., Manchester 2; 160 pp.; price 4s 9d.

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